# JOURNAL

OF

# FARM ECONOMICS

## VOLUME XIV

1932

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Published quarterly by
THE AMERICAN FARM ECONOMIC ASSOCIATION
PRINTED BY THE GEORGE BANTA PUBLISHING CO., MENASHA, WIS.

MAR 16 1932

VOLUME XIV NUMBER 1

# JOURNAL of FARM ECONOMICS

JANUARY, 1932

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Published Quarterly by
THE AMERICAN FARM ECONOMIC ASSOCIATION
Publication Office: 450 Ahnaip Street, Menasha, Wis.

Executive Office: Asher Hobson, Secretary-Treasurer,
University of Wisconsin, Madison, Wis.

Editorial Office: H. E. Erdman, Editor,
University of California, Berkeley, Calif.

Price: $3 per year, this issue $1.25

Entered as second class matter at the post office at Menasha, Wis. Acceptance for mailing at a special rate of postage provided for in the Act of February 28, 1925, authorized November 27, 1931.

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JOURNAL
of
FARM ECONOMICS

VOL. XIV JANUARY, 1932 No. 1

# WILLIAM JASPER SPILLMAN
## 1863-1931
### FIRST PRESIDENT OF THE AMERICAN FARM MANAGEMENT ASSOCIATION

The memorial below and the three papers following were presented at the dinner meeting of the American Farm Economic Association held at Washington, D.C., December 29, 1931, in memory of Dr. Spillman and his work. One hundred and twenty-seven of Dr. Spillman's friends and associates were present. Dr. Thomas Nixon Carver presided.

To a very unusual degree Dr. Spillman combined practical organizing ability with penetrating power of abstract reasoning. The organization of the Office of Farm Management, and initiation of the County Agent System were works of first importance in the field of farm organization. His work on the subject of diminishing returns places him in the front rank of economic theorists.

His fertile mind suggested many more things than one man could do. Many of these suggestions were brought to fruition by others. For example, Taylor states that he got the dot system of illustration from maps by Spillman showing the distribution of grasses throughout the United States. From the development of this suggestion we have the excellent maps prepared by the Census and the Department of Agriculture.

He was an inspirer of men, not only because of his own exuberance and fertile imagination but because of his personal relationships. Under his guidance the Office of Farm Management was one of the most zealous and enthusiastic groups of workers ever assembled. Each man was fired with zeal for his particular project. Spillman saw all, and sometimes more than all, that might be accomplished, and thereby often secured the accomplishment of the apparently impossible. He was never quite so happy as when listening to a young man telling of his work, or when he himself was enthusing over the work which some young man had accomplished.

Dr. Spillman was the first president of this association and throughout his life furnished an inspiration to the workers. Fortunately, such a fertile imagination suggested innumerable things not yet done so that we will continue to find carried to fruition many of the things which his imagination suggested.

T. N. CARVER
H. C. TAYLOR
G. F. WARREN

# THE ORIGIN AND DEVELOPMENT OF FARM ECONOMICS IN THE UNITED STATES

G. F. Warren
Cornell University

It is unsafe to assign any date as the first point in the beginning of philosophy or science. Since innumerable men have been freely making statements on all subjects since speech began, hazy remarks of an ancient may be, or may be thought to be, the intellectual ancestor of nearly every new thought. Very early in his development, man began to think of flying, hereafter, if not at present. But this had little relationship to the work of the Wright brothers in a bicycle shop, or to Langley's mathematics. Some very excellent observations on farm management were made by Pliny and Cato.[1] Some of these were true and some were not. The average of accuracy was probably higher than for the chemists of that time.

Since agriculture was one of the first interests of mankind, innumerable helpful observations occur throughout history. The Egyptians had some well developed ideas on land tenure. Arthur Young's *Travels* included observations on farm economics.

With the above cautions in mind, I believe it is safe to make the statement that little definite scientific work was done in the field of farm economics before 1900.

Thirty to forty years ago, a number of men were beginning to think of this subject. The rapid development of physics, chemistry, bacteriology, and biological work in the experiment stations laid a good foundation for a beginning in farm economics. I have not had time to gather data for the different colleges or to review the literature to trace beginnings, but will make a few observations from my own knowledge which may be useful when a thorough study of the subject is made.

Roberts gradually developed from a farm manager into a teacher at the Iowa Agricultural College. Just when he began to teach farm accounting to students I do not know, but he says:

"On the first of April, 1874, I took an inventory of all the property belonging to the farm, a copy of which I filed with the University Treasurer—the first ever taken by any department of the university. The next year orders went out to every department to file such lists of property with values affixed."[2]

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[1] Harrison, Fairfax: *Roman Farm Management*, 1913.
[2] Roberts, I. P.: *The Autobiography of a Farm Boy*, p. 184, 1916.

He taught practically no farm management except cost accounting, but developed and taught a course on farm accounting. This system was developed on the college farm. So far as I know, he never applied it on any farmer's farm. A considerable number of mistakes were made, such as charging manure to an "improvement" account without ever getting it paid for. A daily work report for man and horse labor was used. His system furnished the inspiration for starting the system of farm accounting which began in New York in 1907 and which has continued without interruption since that date. It furnished a number of ideas which are still in use.[3]

In 1902, Hays of Minnesota, in cooperation with the Bureau of Statistics of the United States Department of Agriculture began definite cost accounting research.[4] This work has been continued without interruption by Boss and others to the present time, except for some of the war years. The first work neglected quantities, but I think it deserves credit for being the first scientific work on cost accounting.

Hunt began to give lectures at the Ohio State University that included material on the history of agriculture, public policy, and farm management. As the work progressed, this became more and more farm management. By the time he left Ohio to go to Cornell, it was primarily a course in farm management. I believe that he deserves credit for being the first to organize a course in farm management that was comparable with what is considered under that subject today. His course ended with a farm problem. The farm was mapped, all available data about it obtained, the students visited the farm, discussed its management with the farmer, and finally made a detailed plan for its operation, with estimates of receipts and expenses for a five-year period. So far as I know, he was the first one to use the word "labor income" as a measure of farm profits.[5] In calculating it, he thought that taxes should be omitted because, he said, he had to pay taxes if he invested his money in any other business. Acceptance of this point of view accounts for the omission of taxes in the *Cornell Bulletin 295*.

Hunt did most of his personal research in the field of agronomy. But he trained students in the scientific method and taught

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[3] Roberts, I. P.: *Farmers' Business Handbook*, pp. 22-115, 1903.
Warren, G. F.: *Farm Management*, pp. 440-493, 1913.

[4] Hays, W. M. and Parker, E. C.: *The Cost of Producing Farm Products*. U.S.D.A. Bureau of Statistics, Bul. 48, 1906. Also published under same title as Minn. Exp. Sta. Bul. 97, Oct., 1906.

[5] Hunt, T. F.: *How to Choose a Farm*, pp. 111, 127, 1906.

enough farm management so that they were prepared to begin research work in this field.

The next important development in this field was when Spillman became agrostologist in the Department of Agriculture in 1902. Just when his first interest in farm management began I do not know. But since he was interested in physics, heredity, language, grasses, and everything else, I presume that a search of his versatile work would show something in the field of farm management before this date. While he contributed much in the theoretical field, not only in farm management but in other sciences, from the first he had the idea of going directly to farms for information, and began the series of descriptions of successful farms in 1903.[6] Many such bulletins were published by Spillman and others under his direction or stimulation.

Bailey was one of the first men connected with experiment stations to see opportunities in field studies, possibly because of his field work under the great botanist, Asa Gray. Soon after the Department of Agriculture started soil surveys, the writer was given the privilege of working in the department to learn methods of soil mapping and mechanical analysis of soils. Bailey and Craig were interested in seeing whether such soil studies could be related to apple growing. In 1903, two graduate students, one holding the fellowship in agriculture and the other the fellowship in geology, were asked to study this problem for Wayne County, New York. This study also included a statistical analysis of other factors affecting apple orchards.[7] This was the beginning of the agricultural survey work in New York. In the advanced degree examination conducted by Bailey, Hunt, and Craig, one of the chief questions was whether this method could be applied to the entire business transactions of the farm and, if so, how it could be done. After one failure and one partially successful attempt, a third year's work, in 1908, dealing with the farm as a whole, was published.[8]

The above gives some information concerning the early development of cost accounting, studies of individual farms, and agricultural surveys. While this was going on, the Bureau of Crop Estimates was gathering many kinds of useful informa-

[6] Spillman, W. J.: *A Model Farm*, U.S.D.A. Yearbook, 1903, pp. 363-370.
Spillman, W. J.: *An Example of Model Farming*, U.S.D.A. Farmers' Bul. 242, 1905.

[7] *An Apple Orchard Survey of Wayne County, New York.*
Warren, G. F.: Part I. McCourt, W. E.: Part II. Cornell University Agr. Exp. Sta. Bul. 226, 1905.
Warren, G. F.: *An Apple Orchard Survey of Orleans County.* Cornell University Agr. Exp. Sta. Bul. 225, 1905.

[8] Warren, G. F. and Livermore, K. C.: *An Agricultural Survey.* Cornell University Agr. Exp. Sta. Bul. 295, 1911.

tion by sending questionnaires to farmers. Who gave this its first stimulus I do not know, but the inquisitive mind of N. C. Murray and the organizing ability of Estabrook were responsible for its development. Much of this data contributed at once to the knowledge of farm economics. It furnished the basic information which has been used for innumerable studies in recent years and will be used even more in the future.

During the same period, Taylor was making use of the census. He developed the dot system of mapping, the original idea of which he says came from a book by Spillman showing the distribution of grasses.[9] His studies on land tenure resulted in changes in the census schedules which provided the elaborate information on this subject which has been included ever since.

Spillman was always ready to use all methods of study and ready to study any subject of human interest. He brought Peck from Minnesota and entered on very elaborate and detailed cost studies. From Wisconsin he brought men to work on agricultural geography. He and Taylor of Wisconsin, and Sanderson (who was then Director of the New Hampshire Experiment Station), were interested in the possibilities of survey work and obtained the services of two of the men who had helped on the Tompkins County survey.[10]

This was a period of keen enthusiasm and rapid development, and the most enthusiastic center was the Office of Farm Management.

In 1913 Carver became Director of the Rural Organization Service of the Department of Agriculture.[11] This marked the beginning of definite work by the government on rural organization. In this same year, Brand became Chief of the Office of Markets. He and Carver planned the organization which later became the Bureau of Markets.

Graduate schools of agriculture were being arranged by Dr. True of the Office of Experiment Stations. The first of these gave no place to any economic work. But for the school of 1908 held at Cornell University, Spillman was allowed to give a few lectures. With his usual enthusiasm and generosity, he divided his time with others who were working in the field of farm management. After conferring with him, a circular letter was mailed

[9] Taylor, H. C.: *The Place of Agricultural Economics in Education and Research.* Research Bul. 16, Wis. Agr. Exp. Sta., 1911.

[10] Thomson, E. H.: *Agricultural Survey of Four Townships in Southern New Hampshire.* U.S.D.A. Bureau of Plant Industry Circ. 75, 1911.

[11] Carver, T. N.: *The Organization of Rural Institutions,* U. S. Dept. Agr. Yearbook, 1913, pp. 239-258.

to all colleges, and experiment stations, and to all individuals who were known to have any interest in the subject. This called for an exhibit of laboratory work, forms for research work, and the like. This meeting was called for and held on July 28, 1908. This was, I think, the first formal meeting of persons engaged in this work.

For the graduate school of agriculture held at Ames, Iowa, in 1910, Spillman was allowed one week of lectures. Butterfield and others were allowed three weeks under the title of rural economy. The persons engaged in farm management work made a vigorous effort to have two weeks allowed to farm management, but were unsuccessful. On November 8, 1909, Spillman wrote suggesting that another exhibit of farm management course work, research forms, etc., be assembled, and asked the writer to look after this. In preparing the circular letter which was to go to all institutions, a statement was included proposing an organization of the workers in farm management. This circular letter was sent out January 19, 1910. This idea was heartily approved by Spillman, and a meeting was held at Ames, July 27, 1910, at which the American Farm Management Association was organized. Spillman was elected president. Fourteen persons were present who later joined the association. A few others were also present. For many years this association continued to meet regularly with the Association of Land Grant Colleges. The work gradually broadened, particularly after the formation of the Bureau of Markets, and a committee was appointed to consider changing the name of the association. In January, 1919, the name was changed from the American Farm Management Association to the American Farm Economic Association.

For the first seven years, meetings were held in connection with meetings of agricultural scientists. The meeting in 1917 was the first one to be held in connection with the American Economic Association and American Statistical Association.

It will be noted that, as in most countries, the first work in farm management was usually done by agronomists. The *Annual Report of the American Farm Management Association* for 1910, shows that farm management was taught in the same department as agronomy in twenty-five institutions. In three institutions, it was taught in departments of rural or agricultural economics. It was several years before any economists except Dr. Taylor joined the association.

This development was logical and, I believe, fortunate. Of all

the men working in agriculture the agronomists came nearest to seeing the farm as a whole. It was not a long step from crop rotations to cropping systems and from that to the farm as a whole. Roberts, Hays, Hunt, Boss, Spillman, and Larsen of Denmark were all agronomists who became interested in farm management.

One distinct advantage of this procedure was that it resulted in the immediate adoption of the scientific rather than the philosophical method of procedure. In the earlier days economics was primarily philosophy rather than science. The agronomists who went into farm management carried over their scientific methods at once into all their work. It may not always have been good science, but it was nevertheless the scientific point of view. It is also interesting to note the influence of this on the teaching in agricultural colleges in farm management, marketing, prices and statistics. The methods used in teaching economics in those days were primarily lectures and reading. From the very beginning, courses in farm management included laboratory work, because the teachers had been in the habit of having laboratories for scientific work. This practice has continued and, while the field has broadened so that there is no longer any boundary line between economics and agricultural economics, the laboratory method is still generally used in all of the agricultural colleges.

Since the scientific method was used, it was from the start expected that statistical equipment and clerical help would be involved. Some of the best statistical equipment for economics in many of the universities is now to be found in the field of farm economics. Also, research funds are available. It is no accident that farm economics is turning out a vast volume of research work. It has funds for research.

The separation in the earlier years of work was not merely because of the lack of knowledge of economics on the part of the agronomists. Little interest was shown in the results of research by economists. I recall one bulletin (Cornell Bulletin, 295) being sent to a considerable number of economists, but only one bothered to acknowledge it. About fifteen years later, one group to which it had been sent asked that it be discussed before their seminar. One must conclude that it was so profound as to require fifteen years of perusal, or else that this particular group of economists failed to see in it anything related to their work.

Dr. Smith is to discuss the development of extension work.

In going over my correspondence of many years with Spillman, I was impressed with the gradual development of the extension work. In one case, I found myself criticizing this work because a local politician was unloaded onto Spillman as one of his field men. He did not allow such small matters to interfere with the important things which he had in mind, and often found something useful for such a man to do.

A railroad man in New York desired that the college do something for the abandoned hill lands along his railroad. The College of Agriculture had the usual cumbersome committee (of which I was one) representing all the interests of the institution, to look into the matter. It advised the purchase of one of these farms in Broome County and the laying out of an extensive series of experiments. The railroad man was not quite satisfied with this proposal. Later he talked to Spillman, and they quickly reached an agreement which resulted in having a county agent appointed. This was one of the first if not the first Farm Bureau.

The merging of the Bureau of Markets, the Office of Farm Management, and the Bureau of Crop Estimates into the present Bureau of Agricultural Economics and its rapid development under the guidance of H. C. Taylor is such recent history as to be known by all. I will not attempt to describe the vast amount of work that has been done in recent years. I am including ancient history only.

There are no boundaries in human knowledge. All our subject matter divisions are merely human expedients for administrative purposes. Human knowledge cannot be defined in two dimensions, but if it is to be described as a field, it is a continuous field without fences, except arbitrary ones that have been built up by men who have had some vested interest. Not infrequently the effort expended in maintaining these fences would add materially to our sum of knowledge if it were expended in research rather than in educational policies. We have now reached the time when we can see that farm management overlaps on all subjects of human thought, that prices, statistics, and taxation have no limitations in their contacts and that, therefore, the one who is to work in any one of these fields should have an extremely broad training in general science. This is particularly true for those who work in agricultural economics because it has its roots in the soil. It is therefore desirable that the future worker be trained in general sciences such as

botany, chemistry, physics, geology, soils, meteorology, psychology, and mathematics as well as in economics and the particular specialty which he expects to follow. While this training is desirable today, much of it was unavailable in the earlier years. The one who is preparing for the future should obtain the best preparation that present facilities provide. He must compare his work not with the efforts of the early workers in the field, but with new standards based on the opportunities for preparation and the large funds and good equipment that are now available.

# THE ORIGIN AND DEVELOPMENT OF THE OFFICE OF FARM MANAGEMENT IN THE U. S. DEPARTMENT OF AGRICULTURE

E. H. THOMSON
PRESIDENT, FEDERAL LAND BANK OF SPRINGFIELD, MASS.

A review of the early work in the Office of Farm Management, United States Department of Agriculture, centers closely around the life and work of the late Prof. W. J. Spillman. Thirty years ago next Friday, January 1, 1902, Professor Spillman began his work with the department. A word as to his early training and experience will help to better understand the important contributions he made to American agriculture. He was born in Lawrence County, Missouri, October 23, 1863; son of Judge Nathan Cosby and Emily (Paralee) Spillman; B.S., University of Missouri, 1886; M.S., 1889; D.Sc., 1910.

After leaving the University of Missouri, in addition to his graduate work, Professor Spillman was a teacher of elementary science in the state normal schools and Vincennes University. In his university career, he devoted himself to the biological and physical sciences rather than to agriculture. He was an expert mathematician.

Leaving Indiana, he taught in the Monmouth State Normal School in the Willamette Valley, Oregon. In 1894, a year when thousands of bushels of No. 1 wheat sold at eighteen cents per bushel in the Palouse Country of eastern Washington, Spillman was chosen professor of agriculture and head of the experiment station of the new state agricultural college at Pullman, Washington. Such a position required an inventive turn of mind, especially for analyzing and organizing the courses of study and research. In addition, the position required that the head of such a department have the gift of popular presentation of his subject. It was in those early days that he laid the foundations to become a missionary of the gospel of a new agriculture.

The next eight years of Spillman's life were devoted to an intense study of the problems of agronomy, crop rotations, and plant breeding in a new agricultural region—one that would test the resources of the most experienced worker.

During these years some of his experiences in studying the farm practices of that wheat growing district convinced him that many farmers had already worked out an answer to some of the most difficult questions. He never lost sight of the funda-

mental fact that every farm was, in a sense, an experiment station, and that any research worker attacking farm problems should first of all survey and become familiar with the results already worked out by the most successful farmers in that particular line of endeavor. The realization of this fundamental truth was the foundation on which the research work of the Office of Farm Management and the development of the County Farm Bureaus and extension activities were built.

In 1901, the plant breeding studies of Spillman progressed to a point where it was desirable to send him to the session of the American Association of Agricultural Colleges and Experiment Stations at Washington, D.C. There his paper and the discussions of his findings attracted attention. Before he left Washington in November, 1901, he had been invited to become a member of the United States Department of Agriculture, with which he remained, excepting for a short interim, until his death.

The first official recognition of the early work in Farm Management is shown in a report of the Secretary of Agriculture for the year 1902: "As the work of reorganizing this bureau developed, the need was felt for properly coordinating all the varied lines of plant work in such a way that they could be brought directly home to the practical farmer and fruit grower in all parts of the country. To this end I have approved the establishment within the bureau of the Office of Farm Management which shall have for its object the bringing together, in concrete form, of all the facts developed in the bureau as a whole, sifting the results and applying them in a practical way where they will do the most good. To enhance the value of this work, general studies have been inaugurated in the matter of securing facts regarding the way in which the best paying farms in the country are being managed and what are the relationships of surrounding conditions such as proximity of markets, the ways of leasing or controlling the land, soils, and climate, and the method of farming followed."

Further recognition was given by the Secretary of Agriculture in his report of 1903 in which he stated: "In every community and in every section there will be found farmers who are much more successful than others. There are reasons for this and it is these reasons that the department is endeavoring to determine."

Professor Spillman's early work in the department was largely along the line of agronomy and studies of farm practice.

A series of demonstration farms, largely in the southern states, were selected, and the operations, particularly with reference to farm practice, were studied. Early publications illustrative of this work were:

*Yearbook Separates*

278 Systems of farm management in the United States. By W. J. Spillman. From *Yearbook 1902.*

323 A model farm. By W. J. Spillman. From *Yearbook 1903.*

340 Opportunities in agriculture. III General farming. By W. J. Spillman. From *Yearbook 1904.*

When Professor Spillman went to the department, he was given the title of "agrostologist." In 1903 this title was changed to "agriculturist," indicative of the type of the work that he was doing.

On July 1, 1905, the Office of Farm Management was set up under its own appropriation within the Bureau of Plant Industry. This organization continued for ten years until July 1, 1915, when it was made a separate office under the office of the Secretary. On July 1, 1920, the name was changed to Farm Management and Farm Economics and on July 1, 1922, the office was consolidated with the Bureau of Markets and Crop Estimates, forming the Bureau of Agricultural Economics.

So far as I am aware, there is only one research worker now in the Bureau of Agricultural Economics who was with the Office of Farm Management when it was organized, namely, H. A. Miller. Mr. C. W. Warburton, now Director of Extension Service, United States Department of Agriculture, was likewise with Professor Spillman in the earliest years of the office.

As far as I can discover in the records, the first mention of the term "Farm Economics" was in the reports for the year 1909. Considerable work on farm cost accounts in cooperation with the Minnesota Experiment Station had been carried on prior to this time, but not until 1908 was this work transferred to the Office of Farm Management. From 1905 to 1910 the work of the office was largely confined to studies of farm practice. Some of the publications issued during that period illustrate the character of the studies.

*Bureau of Plant Industry Bulletins*

94 Farm practice with forage crops in western Oregon and western Washington. By Byron Hunter. 1906.

102 A successful dairy farm. By L. G. Dodge. III Planning a cropping system. By W. J. Spillman. 1907.

117 The reseeding of depleted range and native pasture. By David Griffith. 1907.

257 The weed factor in the cultivation of corn. By J. S. Cates and H. R. Cox. 1912.

*Bureau of Plant Industry Circulars*

45 The utilization of pea-cannery refuse for forage. By M. A. Crosby. 1910.
60 Suggestions to settlers on the sandy soils of the Columbia River Valley. By Byron Hunter and S. O. Jayne. 1910.
64 Agricultural conditions in southern New York. By M. C. Burritt. 1910.

*Bureau of Plant Industry Documents*

290 Model plan for a southern farm. By D. A. Brodie. 1907.

*Farmers' Bulletins*

242 An example of model farming. By W. J. Spillman. 1906.
272 A successful hog and seed-corn farm. By W. J. Spillman. 1906.
310 A successful Alabama diversification farm. By M. A. Crosby, J. F. Duggar, and W. J. Spillman. 1907.
323 Clover farming on the sandy jack-pine lands of the north. By C. B. Smith. 1908.
326 Building up a run-down cotton plantation. By D. A. Brodie. 1908.
337 Cropping systems for New England dairy farms. By L. G. Dodge. 1908.

*Farm Bulletin 370,* entitled, "Replanning a farm for profit," by C. B. Smith and J. W. Froley, published in 1909, well illustrates the type of effort to which the early studies were directed.

Starting in 1908 and developing rapidly from 1910, the work in farm accounts and studies in agricultural economics was given much greater attention, the studies in farm practice continuing but gradually taking shape along extension lines and eventually being transferred in 1914 to the Office of Experiment Stations. The early work of the County Farm Bureau extension work began and was largely formulated during this period under the direction of Professor Spillman.

The early work in farm accounts and bookkeeping was carried out in cooperation with individual farmers located in various parts of the country. These earlier accounts went into great detail and involved a large amount of time and expense. The results, while not particularly valuable from the viewpoint of determining costs, were, nevertheless, especially helpful formulating systems of bookkeeping and accounts and in developing methods that proved effective in later years. Part of the appropriation for this type of research was set aside for cooperative work with the agricultural experiment stations in Minnesota, Ohio, Wisconsin, and New York. It was in these cooperative projects that most effective cost studies were obtained. The first publication of the department on farm bookkeeping was *Farmers' Bulletin 511,* published in 1912.

While some earlier surveys had been made, the first farm

management survey to attract the attention of the workers in this field of endeavor was that by Warren of Cornell in 1908, which survey was made in Tompkins County. The results were published by Warren and Livermore in *Bulletin 295* of that station.

The first work in farm management surveys by the Office of Farm Management was by the writer in 1909 and was a cooperative project with the New Hampshire Agricultural Experiment Station. This survey was made in four townships in southern New Hampshire, the results of which were published in a Bureau of Plant Industry circular in 1911. This early work was followed by a more extensive survey of three representative areas in the states of Indiana, Illinois, and Iowa in 1911, the results being published in *Bureau of Plant Industry Bulletin 41.*

While the methods used in these earlier surveys were somewhat crude as compared to the practices followed today in such work, yet the essential principles discovered with respect to farm organization and farm management are unchanged today. Mr. H. M. Dixon, now in charge of Farm Management Extension of the Office of Cooperative Extension work of the Department, was a member of the party of young men who obtained the survey records in the corn belt studies.

Among other farm management surveys made in the following years were those in Chester County, Pennsylvania; Wilamette Valley, Oregon; Provo Valley, Utah; Sumter County, Georgia; Lenawee County, Michigan; and Palmer Township, Washington County, Ohio.

Coincident with the rapid development in farm management surveys, the same methods of obtaining data were applied to cost of production studies for individual crops and classes of livestock.

While this cost of production work by the survey method was pioneer in its character, yet it constituted a foundation for the more detailed work obtained through individual farm accounts being carried on by several agricultural colleges and experiment stations.

It was during this period from 1913 to 1915 that the work and personnel of the office increased rapidly under favorable appropriations from Congress. Beginning in 1914 and continuing through to 1919, increasing attention was given to cost studies, price relationships, and other projects in the field of agricultural economics.

In an address in 1919, Dr. H. C. Taylor grouped the activities of the Office of Farm Management in seven divisions as follows:

1. Cost of production.
2. Farm organization.
3. Farm finance.
4. Farm labor.
5. Agricultural history and geography.
6. Land economics.
7. Farm life studies.

The work of the Office and the Bureau for the last decade is known to all of you.

In summarizing, certain fundamental features of the work of Professor Spillman in the Office of Farm Management deserve special mention.

First is the method of study which he initiated, his belief and adherence to the idea that every farm is an experiment station, a place where a farmer is endeavoring to work out the solution of every problem before him in a practical, business-like manner. Second an analysis of the practices of successful farmers is sure to reveal important facts in most every line of agricultural research.

Professor Spillman's early work and success in this method of attacking farm problems has been followed to great advantage by workers in other lines of research.

The early work of the Office also directed attention to the more common farm practices which had been overlooked by the research workers in agronomy, horticulture, and animal husbandry. While this work was the beginning of demonstration farms and the study of successful practices, so far as I have observed it is today largely confined to local areas and I believe there is still room for research of a national character along these same lines.

Another far-reaching result of the early work of the Office was the popularity and enthusiasm which it aroused in the agricultural committees of Congress and through them made possible substantial appropriations for this new line of effort. Unquestionably the large appropriations for County Farm Bureaus and extension work beginning in 1914 and continuing in the years following were facilitated by the enthusiasm and inspiration given to the work by Professor Spillman.

The early work of the Office of Farm Management was carried out not without considerable controversy with the other bu-

reaus of the department. Embracing a study of the whole farm business as it did, friendly but very real arguments were frequently had with those in charge of the various lines of effort, particularly Plant Industry and Animal Industry. No less a man than Professor Spillman with his enthusiasm, keen insight, and untiring energy could have overcome some of these obstacles.

Professor Spillman possessed an unsurpassed knowledge of American agriculture and it is doubtful if any agriculturist in America met a greater number of the farming public.

While Professor Spillman was the real inventive genius in the early work of the Office, he was assisted by a splendid group of keen young men. He was intensely loyal to his workers and he inspired them to their best efforts. As one of his former workers has so truly said, "It is certain that few have had the satisfaction of feeling that under all circumstances they might depend on the unswerving friendship of a truly great man."

It was an honor and a privilege to be associated with him.

# THE ORIGIN OF FARM ECONOMICS EXTENSION

C. B. SMITH
UNITED STATES DEPARTMENT OF AGRICULTURE

Your speaker learned from Doctor Spillman scarcely a month before his death that, back in 1894, Prof. Willett M. Hays of the Minnesota College of Agriculture had a class in farm management. A part of the duties of each student in the class was to draw a map of his home farm as it was and then draw another map showing how he would improve it. That work has been growing and enlarging ever since under the guidance of Andrew Boss.

Doctor Spillman came into the U. S. Department of Agriculture in 1902 as Chief of the Office of Agrostology. He came into the office from the State of Washington where he had already discovered that many of the things we think new or unknown in agriculture can be found, as a matter of fact, already in practice on the better farms here and there throughout the country. He came with the view that progress in agriculture often can be made faster by searching out these better farmers and studying their methods than by experimentation.

We know now that in Doctor Spillman's conviction outstanding farmers have already learned many of the things we want to know about agriculture; he had gotten hold of a truth of fundamental significance to agricultural extension, which later economic studies have confirmed over and over again. We may state this truth as an economic agricultural law, perhaps, as follows:

In any group of 100 farmers, taken as they come anywhere in the United States, there are between 15 and 20 farmers whose average labor income is approximately 4 times the average labor income of the whole group.

This law is as significant in extension work as Mendel's law is in plant breeding or the Babcock test in dairying. It points the way to readjustments that may be made by farmers in each community anywhere, looking toward a betterment of their condition.

It gives agricultural outlook material something to tie to in each community of meaning and pertinence.

Doctor Spillman, after coming to Washington, soon had gathered around him a dozen or more agricultural-college-trained field men who were assigned different territories in the United States and given commissions to search out these outstanding

farmers, study their methods, and publish the results for the benefit of other farmers. Your speaker was one of those men. Titles of some of the bulletins published as a result of this work read as follows: *A Successful Hay and Seed Corn Farm; A Model Dairy Farm; Building up a Run-down Cotton Plantation; Cropping Systems of New England; A System of Tenant Farming and Its Results; etc.*

In the early days of the Office of Farm Management, Doctor Spillman established twenty-five or thirty so-called farm management demonstration farms in the cotton belt. The whole direction and management of these farms was in the hands of the government. Doctor Spillman stated that practically all of these farms were failures. Even where they succeeded, they were failures because farmers visiting them commented that if they had the United States Government behind them they could succeed too. This type of economic demonstration was soon abandoned.

Doctor Spillman had a substantial part in establishing our present county agent system, especially in the North and West.

Your speaker recalls that one winter day, about 1911, a leading Republican congressman on the Agricultural Committee of the House called on Doctor Spillman at his office to discuss the demonstration work then being carried on in the southern states. The congressman was of the view that the use of Federal funds for such demonstration work was paternalism and unconstitutional and he was for eliminating the item for this work from the agricultural appropriation bill.

Doctor Spillman not only convinced the congressman that the demonstration work was constitutional and most desirable but that the system of county extension agents might well be extended into the North; and so well did Doctor Spillman succeed in his presentation that the congressman went back to his office on Capitol Hill and was instrumental in increasing the appropriation to the Office of Farm Management, so that county agricultural agent work might be begun in the northern and western states that year.

In this manner was demonstration work still more firmly established in the South and its beginning strengthened and given Federal sanction in the North and West.

Doctor Spillman himself was personally responsible for looking over the ground, suggesting the financial arrangement, taking the Binghamton Chamber of Commerce and the Delaware and Lackawanna Railroad into partnership, soliciting the co-

operation of Cornell University, and counseling with these forces on the man to be employed as county agent. This was the first county agent employed in cooperation with a Farm Bureau in the North. The plan of work for the agent to follow was worked out cooperatively by the entire group.

The distinguishing feature of this early work was that college-trained men were employed and they began their work, not with demonstrations but with a study of conditions upon which demonstrations might later be based, and a utilization of the best practices of those farmers who were already making a success of farming.

The slant given by Doctor Spillman to extension work in the North and West has found expression in that work to the present time. Doctor Spillman also placed the emphasis on the net return from the whole farm at the end of the year as the basis of measurement of economic progress on the farm.

Doctor Spillman's guidance of extension work, so far as the department's extension affected the northern and western states, began with about 1910 and continued to the enactment of the Smith-Lever law—a period of four or five years—and his interest in the work continued until his death.

A part of the Federal Office of Farm Management, known as the Section of Field Studies and Demonstrations, was organized about 1910. Your speaker, under Doctor Spillman's guidance, was in charge of this section. The staff of this section made studies of outstanding farms they found here and there throughout the county and, upon request from farmers, they were given individual help in analyzing their farm business and replanning their field and farm organization.

There were mighty few agricultural colleges teaching farm management in those early days, 1905-10, outside of George F. Warren at Cornell and Andrew Boss of Minnesota.

Then, in March, 1911, came Dr. George F. Warren and K. C. Livermore's *Cornell Bulletin No. 295,* entitled: "An Agricultural Survey—Townships of Ithaca, Dryden, Danby, and Lansing, Tompkins County, New York." This was an epoch-making bulletin in the farm management field. It gave to the world the details of the survey method of studying farming. It set up the labor, income and certain other factors as a method of determining the relative efficiency of farmers. It brought clear thinking, clarification, and system out of confusion.

The preface to *Cornell Bulletin 295* credits the Commission

on Country Life as being the inspiration for the survey, though M. C. Burrett, under the guidance of Doctor Warren, had reported on the incomes of 178 New York farmers as early as 1909 in *Cornell Bulletin 270.*

These early farm management survey bulletins have been the basic starting point of much of the farm management extension work in the United States.

About 1912, G. P. Scovell, then a county agent in Chemung County, New York, a former pupil of Doctor Warren, and a joint employee of the Federal Office of Farm Management and Cornell College of Agriculture, showed us more fully how to apply farm management survey data in extension work. His plan was so logical and attractive that the writer, with the encouragement of Doctor Spillman, sought and was granted the privilege of using $50,000 out of a $400,000 appropriation to the Federal Office of Farm Management for cooperation with the states in the employment of state farm management demonstrators. This was in 1914, when the extension work of that office was transferred to the Federal Extension Service, known then as the States Relations Service.

Mr. L. H. Goddard of Ohio was put in charge of this work and promising men were assembled in groups of six to twelve and given intensive training in taking farm records, tabulating them, analyzing them, and taking each farmer's record back to the farm for explanation and comparison with the average and best farmers of the community. These men went back into the various states and became cooperatively employed state farm management demonstrators, paid in part by the State Extension Service and in part by the United States Department of Agriculture.

This was the beginning of organized, systematic farm management extension work on a national scale in the United States. This group of farm management demonstrators, thus set up, working through commodity extension specialists and county agents, has become one of the most significant groups in the United States in the application of agricultural outlook and intentions of farmers to plant and breed material.

Your speaker has not had opportunity to trace out the origin and development of marketing extension work in the United States; but help of one kind and another, either in shipping or selling cooperatively, or in grading and packing, has been given to farmers, since the agricultural colleges of the country first

began extension work through farmers' institutes and otherwise. Help in marketing has been a part of our present national system of extension work since the first county agent was put in. The need for extension work in this field has culminated in the Federal Farm Board, the original sponsor of which is unknown to your speaker.

But little extension work has been done in the use of farm credit other than assistance given farmers by extension forces in organizing local farm loan associations under the Federal Farm Loan Act. The amount done in farm crop and livestock insurance is negligible. Now and then an extension agent has given some help in county and farm tax analysis, but these fields in economic extension are as yet largely untouched. We are waiting for guidance from research.

I may add that economic extension work of all kinds has increased from an average of around 4 per cent of the time of all extension agents, where it hung for a number of years, to an average of 6 per cent for all agents in 1930, and it probably will be this or a little above in 1931.

The country is awakening to the need of extension work in economics as never before, but progress can be made only as fast as research facts can be gathered, analyzed, systematized, and set down, and extension agents and the public can be taught the meaning and significance of such economic data. We are making progress but it is the slow progress of education. We are moving ahead. Experiment stations are seeing the need of research in economics. Colleges are establishing and enlarging their departments of economics. Extension directors and extension staffs are increasingly seeing the significance of economics in extension work. We have reason to be cheerful. In looking back to the origins of farm management extension, we see in the dim distance the figures of Professor Roberts and Doctor Hunt, and others; but the founders of modern economic extension are Warren, Spillman, Scoville, Goddard, and others.

In closing I want to emphasize that in carrying on farm management extension work nothing is more significant in your speaker's mind than the fact that in every community everywhere there are fifteen to twenty farmers out of each hundred who have learned the way to farm successfully right where they are and that surveys or farm account records to find these farmers constitute a basically sound approach to all forms of economic extension work in that community.

If adjustments in farming are to be made in the light of the agricultural outlook or intentions of farmers to plant and breed, these adjustments may well be based on the facts of successful farms as revealed by farm surveys and farm accounts. When we get enough state and county farm management demonstrators and economically trained county agents to get this kind of data in each farm community for us, we will have found a way of adjusting farming and curtailing surpluses in the interest of a more profitable agriculture in the United States. We never stood in greater need of economic extension work, based on local economic facts as well as national economic facts, than now.

# THE FUTURE OF THE GENERAL PRICE LEVEL[1]

G. F. Warren and F. A. Pearson
Cornell University

Economic changes, drastic in character, are occurring with such rapidity that it is difficult for the human mind to foresee them or even to grasp the significance of the changes after they have occurred. The more important are: the precipitous decline in commodity prices, followed by the suspension of payments on reparations, war debts, and other international debts; the suspension of specie payment by most countries of the world; the drastic drop in the pound sterling and other exchanges; unprecedented exports of gold; the rapid expansion of note circulation; hoarding of currency; advance in discount rates; the $500,000,000 national credit corporation; bank and business failures; the Interstate Commerce Commission's decision on freight rates; financial embarrassments of many municipalities, states, and railroads; huge federal deficit; the Hoover-Laval Conference; advance and decline in grain and cotton prices; the sweeping conservative victory and the protective tariff in England; repayments by the Bank of England; Snowden's plan for "voluntary" conversion of the ten-billion dollar 5 per cent war loan to a lower rate; von Hindenburg's decree for a suspension of legal executions by creditors in East Prussia and a 50 per cent scale down in debts.

There have been few, if any, periods in the world's history when there were recorded so many disastrous events in so short a time.

The spectacular decline in commodity prices which we have experienced in the last two years has reached such a state that the resulting situation is almost unbearable. The deflation and declining prices have meant an economic retreat, step by step but slowly and surely, by the farmers, the home owners, the unemployed laborers, the security holders, and innumerable other groups. The struggle is becoming so intolerable that they cease to resist. A limited amount of adversity stimulates man, but too much overwhelms him.

The world has never experienced, in times of peace, such a prodigious destruction and transfer of wealth in so short a time. We are now in the midst of the most severe depression this coun-

[1] This paper was read by F. A. Pearson at the Twenty-second Annual Meeting of the American Farm Economic Association, Washington, D.C., December 28, 1931.

try has ever experienced. Most measures of industrial activity are about 30 to 40 per cent below normal. During the depression of 1921, Ayres' index of American industrial activity fell to 27 per cent below normal. The panic of 1893 was the only one, prior to 1921, that carried business as much as 20 per cent below normal. In short, the business of the United States is at a level never before reached in the annals of American business. Honest men cannot get work; creditors cannot collect their debts; and "for rent" signs appear everywhere. Changes are coming so quickly and values are being swept away so rapidly that fearless and honest men are so bewildered that they know not how to act. We are like a gassed and wounded regiment in No-Man's Land. After the deluge is over, we can look back and see some of our mistakes. However, while we are in the midst of the depression, the farmers, the bankers, the business men, the unemployed, and not the least, the President of the United States, are groping for light in order that, in this rapidly changing panorama, we may act promptly and wisely.

### *The Agricultural Depression*

When cotton brings but 5 cents a pound on the farm; corn, 33 cents; wheat, 36 cents; hogs, 4 cents, and the general level of farm prices is 30 per cent below pre-war, it is not necessary to direct attention to the severity of the agricultural depression. Although economists differ but little on this subject, there is a great difference of opinion regarding the fundamental causes of the agricultural depression.

Some German economists[2] hold that the depression is due to the low purchasing power of industrial Europe.

In the United States, the commonly accepted explanation of the agricultural depression is over-production. The Secretary of Agriculture, the Farm Board, the United States Chamber of Commerce, and a large number of agricultural economists have taken the position that the agricultural depression is due to over-production, and that the only remedy is curtailed production.

If there is a large crop and there is difficulty in selling the product except at extremely low prices, the conclusion is that the difficulty lies in over-production.

There was never a time when there was not a surplus of something. This year there is a surplus of cotton and copper. There is rarely a time when there is not a shortage of something. Last

[2] Sering, M., "Causes of the International Agricultural Depression," *Proceedings of the Second International Conference of Agriculture*, p. 38, 1930.

year there was a very short corn crop. These surpluses and shortages are phenomena which occur regardless of prosperity or depression. The primary question is, is there a general over-production of agricultural products?

### *Cotton*

Cotton shows a striking case of increased production. From 1923 to 1929, the southern producer received prices for cotton which were 65 per cent above pre-war. Such high prices indicated no over-production of cotton, but the high prices resulted in a great expansion of cotton production in the South. The phenomenal expansion in cotton acreage, 40 per cent from 1923 to 1930, is a very unusual occurrence for a major crop.[3] Over-production is an important factor in the cotton situation, but reduced consumption due to the depression is a more important factor.

### *Total Crop Production*

In order to determine whether there was general over-production, we have constructed an index of physical volume of crop production in the United States. The production of corn, wheat, hay, oats, and cotton has increased from eight to ten times since 1839. When these and other crops are combined, we find that crop production in the United States has increased from 10.6 in 1839 to 100.1 in 1929, when the five years 1926-30 = 100. From 1839 to 1914, the production of crops increased 3.03 per cent per year.[4] This index also indicates that there has been a remarkably uniform rate of increase in crop production in the United States.

During the World War period, we find a diminishing rate of increase in production, rather than the commonly assumed increase due to the stimulation of high prices and the pressure for increased food supplies. Furthermore, during the agricultural depression from 1921 to 1931, there was no great increase in production despite the fact that we are told that our agricultural troubles have been due to over-production. From 1915 to 1929, our crop production continued to increase but at a decreasing rate, 0.85 per cent per year.[5] If correction is made for the substitution of the autos, trucks, and tractors, for horse power, the rate of increase for other purposes is 1.33 per cent[6] per year from 1915 to 1929.

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[3] Warren, G. F., *Economic Outlook for Agriculture in the United States*, Cornell University mimeographed report, presented at the American Farm Bureau Federation, Boston, Mass., p. 3, Dec. 10, 1930.

[4] $Y = 10.631\ (1.0303)^x$

[5] $Y = 47.530\ (1.0085)^x$

[6] $Y = 32.725\ (1.0133)^x$

### *Food and Feed Crops*

From 1839 to 1914, the production of food and feed crops increased 3.02 per cent per year,[7] which was quite similar to the increase in production for all crops (Figure 1).

From 1923 to 1929, the producers of food and feed crops received prices which were only 43 per cent above pre-war. In the same seven years, the total production of food and feed crops was practically stationary.

Despite the fact that our crop production increased at a re-

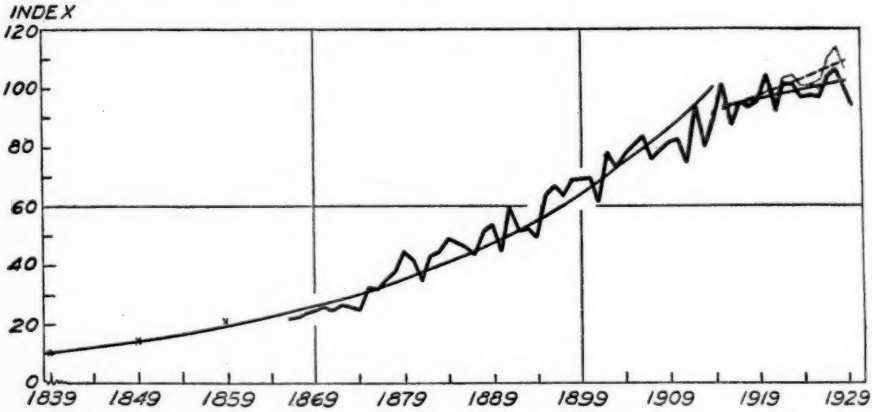


FIGURE 1. Index Numbers of the Volume of Food and Feed Crops Produced in the United States, 1839-1930. (1926-1930 = 100)

From 1839 to 1914 production increased at the rate of 3.02 per cent pear year.[7] From 1915-1929 it increased 0.60 per cent per year.[*] The upper curve shows production corrected for the reduced number of horses.

markably uniform rate, it might still be possible to have overproduction of crops if there were a sudden decrease in the rate of increase in our population. From 1839 to 1914, the population of continental United States increased at an annual compound rate of 2.28 per cent per year.[8] Since then the rate of increase has been 1.46 per cent per year.[9]

The production of food and feed crops per capita increased rapidly from the sixties to about 1900 (Figure 2). From about 1901 to 1914, production per capita was approximately stationary and since that time has declined somewhat. From 1839 to 1900, production per capita increased 0.86 per cent per year;[10] 1901 to 1914, decreased 0.20 per cent;[11] 1915 to 1919, decreased

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[*] $Y = 59.343\ (1.0060)^x$
[8] $Y = 16.140\ (1.0228)^x$
[10] $Y = 63.439\ (1.0086)^x$
[7] $Y = 10.796\ (1.0302)^x$
[9] $Y = 27.624\ (1.0146)^x$
[11] $Y = 123.46\ (0.99804)^x$

1.82 per cent;[12] and from 1920 to 1929, decreased 1.05 per cent.[13]

If adjustment is made for the decrease in the number of horses and mules, production for other purposes decreased 0.29 per cent for 1915-1929.[14]

### *Minerals, Fuel, and Power*

The almost universal opinion is that the widespread urban distress is due to over-production. The physical volume of production of minerals, fuel, and power of the United States has increased at a remarkably uniform rate (Figure 3). From 1839 to

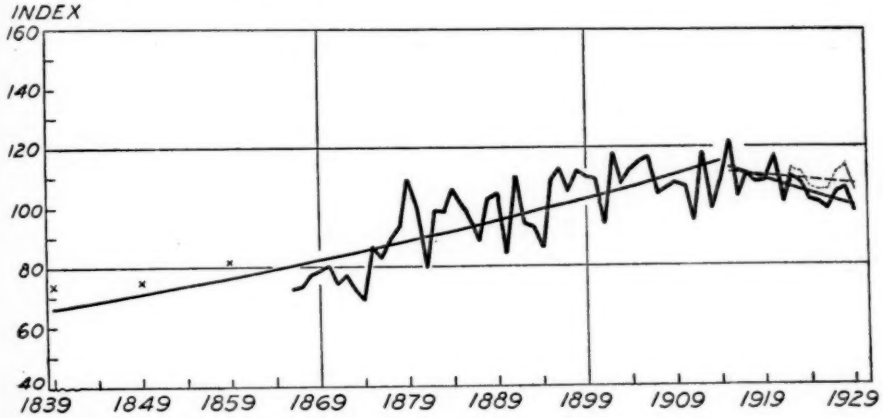


FIGURE 2. Index Numbers of the Production of Food and Feed Crops per capita in the United States, 1839-1930. (1926-1930 = 100.)

From 1839 to 1900 the production of food and feed crops per capita increased 0.86 per cent per year;[10] from 1901 to 1914, decreased 0.2 per cent per year,[11] and from 1915 to 1929, decreased 0.85 per cent per year.**

1914, this increase was at the annual compound rate of 6.43 per cent per year.[15] From 1915 to 1929 the average rate of increase was 4.31 per cent per year.[16]

The rate of growth of production per capita from 1839 to 1914 was 4.08 per cent per year[17] and from 1915 to 1929 was 2.80 per cent per year.[18] In the latter period these sources had to replace horses as well as provide for growth (Figure 4).

### *Total Production*

The combined production of crops, forest products, minerals, fuel and power, is shown in Figure 5. No abnormally high production is indicated for recent years.

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** $Y = 217.09\ (0.99149)^x$
[12] $Y = 464.27\ (0.98178)^x$
[13] $Y = 258.14\ (0.98952)^x$
[14] $Y = 139.06\ (0.99715)^x$
[15] $Y = 0.52919\ (1.0643)^x$
[16] $Y = 2.3280\ (1.0431)^x$
[17] $Y = 8.251\ (1.0408)^x$
[18] $Y = 8.4588\ (1.0280)^x$

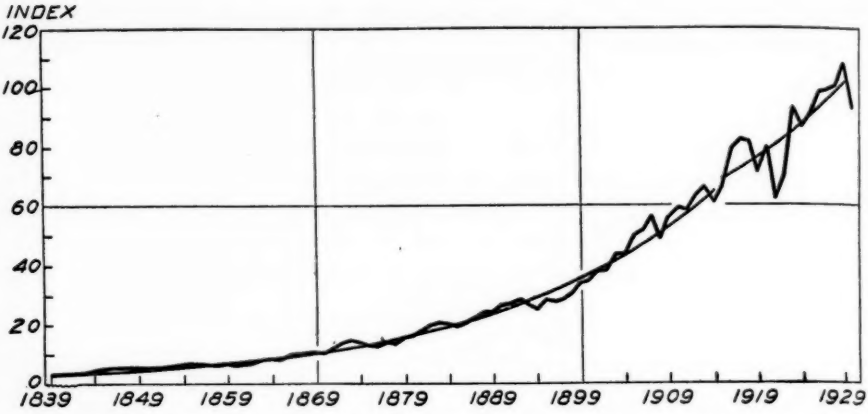


FIGURE 3. Index Numbers of the Physical Volume of Production of Minerals, Fuel, and Power in the United States, 1839-1930. (1926-1930 = 100.)

From 1839-1914 the production of minerals, fuel, and power increased at the rate of 6.43[15] per cent per year. Since that time the average rate of increase was 4.31 per cent.[16]

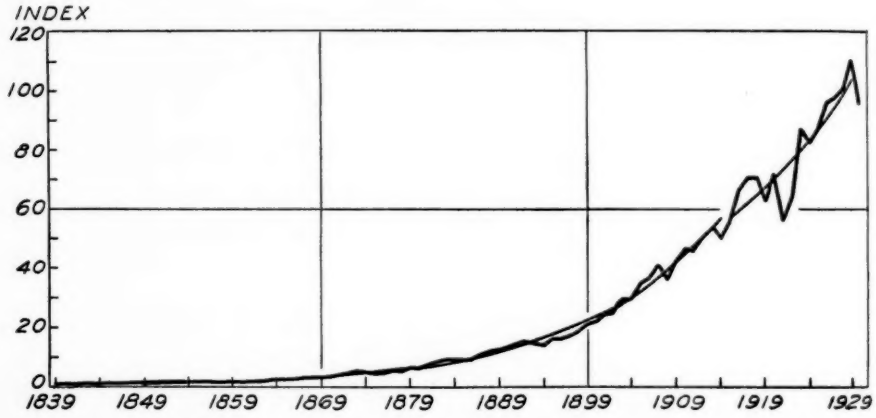


FIGURE 4. Index Numbers of the Physical Volume of Production of Minerals, Fuel, and Power per capita in the United States, 1839-1930. (1926-1930 = 100.)

From 1839 to 1914 the production per capita increased 4.08 per cent per year[17] and from 1915 to 1929, 2.8 per cent per year.[18]

From 1839 to 1914, the normal rate of increase in the total physical volume of basic production was at the annual compound rate of 4.03 per cent per year.[19] Despite the stimulus of war-time demand for goods and despite the great post-war industrial boom, the normal rate of increase in our physical volume of basic

[19] $Y = 4.1412\ (1.0403)^x$

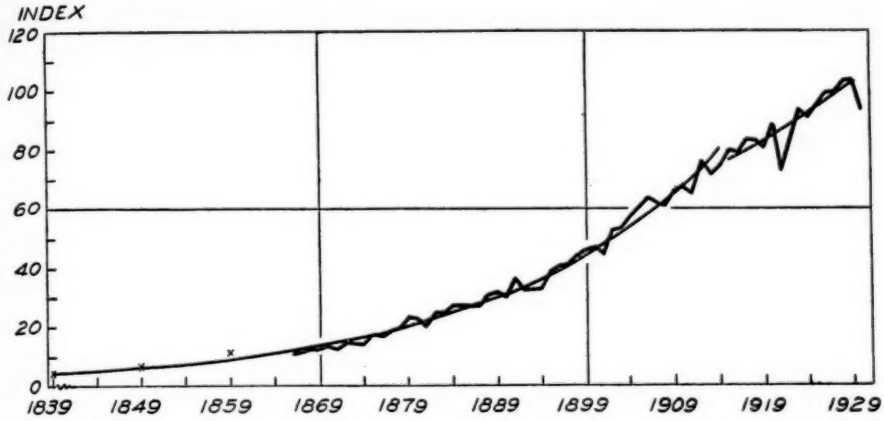


FIGURE 5. Index Numbers of Physical Volume of Production of Crops, Forest Products, Minerals, and Power in the United States, 1839-1930. (1926-1930 = 100).

From 1839 to 1914 the total volume of basic production increased at the rate of 4.03 per cent per year,[19] and from 1915 to 1929 production increased only 2.11 per cent per year.[20]

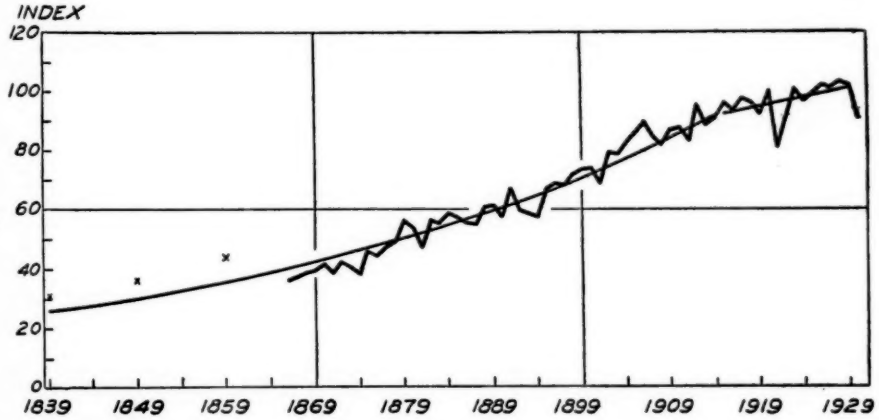


FIGURE 6. Index Numbers of Physical Volume of Production of Crops, Forest Products, Minerals, and Power per capita in the United States, 1839-1930. (1926-1930 = 100.)

From 1839 to 1914 the total basic production per capita increased at the rate of 1.73 per cent[21] and from 1915 to 1929, 0.64 per cent.[22]

production for the 1915 to 1929 period was only 2.11 per cent per year.[20]

From 1839 to 1914, the index of total basic production per capita increased at the rate of 1.73 per cent per year[21] (Figure

[20] $Y = 15.597\ (1.0211)^x$ [21] $Y = 25.433\ (1.0173)^x$

6). From 1915 to 1929, this rate per capita was 0.64 per cent.[22]

Snyder's[23] studies of physical volume of production agree with the conclusions here reached, that no general over-production has occurred.

Snyder's index numbers indicate that the same relationships hold for world production. There has been no unusual increase in production.

Another contention is that while total production may not be too high, there may be too much production of some things and too little of others. If this were the cause, one would expect that the things that were in short supply would bring good prices. There is always some over-production of some things and under-production of others. However, the production of each of the basic products has been reasonably close to the usual relationship to other important products.

We are told that the factories of the United States have capacity to produce more shoes than we can wear, more automobiles than we can drive, more gum than we can chew. It is rather striking that there have been no sudden and violent increases in production. It is equally striking that most of the abnormal deviations from the normal trend are on the side of temporary general shortages rather than of general surpluses.

Despite the fact that there have been technological improvements in production and distribution and despite the fact that we are said to have a surplus of shoe, automobile, and gum factories, our total production in 1929 was only 3 per cent above normal. Now it is the lowest compared with normal that has occurred in the United States since data are available. How can there be a great over-production with the millions that are unemployed?

It is very unfortunate that so many persons who presume to speak with authority for agriculture and for industry take the point of view that our difficulties are due to over-production. There is nothing particularly new in this attitude. Whenever the world has found itself confronted with declining prices, there have always been two schools of thought: over-production and monetary.

### *The Monetary Question*

If we do not find a satisfatory explanation in the supply of or demand for commodities, we must turn our attention to the supply of or demand for money.

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[22] $Y = 56.681\ (1.0064)^x$

[23] Snyder, C., "Overproduction and the Business Cycle." *Proceedings of the Academy of Political Science*, Vol. XIV, No. 3, p. 333 ff., June, 1931.

There is a striking decline in demand, but this came after the depression began and is a result rather than a cause.

Why did wholesale prices rise to 244 in May, 1920?[24] The physical volume of production of the United States indicates that there were no serious deviations from the normal upward trend. About two years and a half after the Armistice, prices collapsed to 136. There was no general over-production in 1921. Again in 1929-31 prices collapsed, but a study of the physical volume of production indicates no sudden increase in production.

Nor do we find an explanation in business cycles. These two occurrences are not cycles but precipices. A business cycle is a rhythmical fluctuation. These two occurrences are not rhythmical—they are collapses to a new base level from which there is no rhythmical return. If return occurs, it will be due to specific acts of legislation or to the discovery of gold mines. The price collapse is accompanied by a business cycle. We must therefore turn to the monetary question.

Index numbers of wholesale prices of all commodities in the United States for 135 years indicate that prices rose during and fell following the War of 1812 and the Civil War. These fluctuations were commonly attributed to supply and demand at the time they occurred. Now they are commonly attributed to the monetary inflation and deflation policies of that time. At the close of the World War, a few economists[25] reasoned that prices would return to pre-war as they had following the War of 1812 and the Civil War. This explanation was not generally accepted, the argument being that under the Federal Reserve system, the United States had a flexible banking system and deflation was not inevitable. In fact, only a few years ago the idea of falling prices was branded as naïve in a discussion before this association.

After the Civil War, it took thirteen years to return to prewar. After twelve years of waiting, prices have now reached prewar.

Even after the deflation of 1921, many economists maintained that the so-called historical point of view was misleading. Our huge gold reserves and the latent power of credit expansion possessed by the Federal Reserve system were said to have created a situation very different from that following the War of 1812

[24] Warren, G. F., and Pearson, F. A., *Wholesale Prices in the United States for 135 Years.* Farm Economics No. 72, p. 1587. September, 1931. Cornell University.

[25] Warren, G. F., "Why prices are high." *Extension Service News,* New York State College of Agriculture, Vol. II, No. 2, p. 1. February, 1919.

and the Civil War. They influenced a great many persons to believe that we were on a price level permanently 50 per cent above pre-war, and that prices would not return to pre-war.

With the world-wide collapse of prices that occurred from 1929 to 1931, an increasing number of economists refuse to accept the over-production explanation and ascribe the depression to monetary causes; but again they are divided into three large

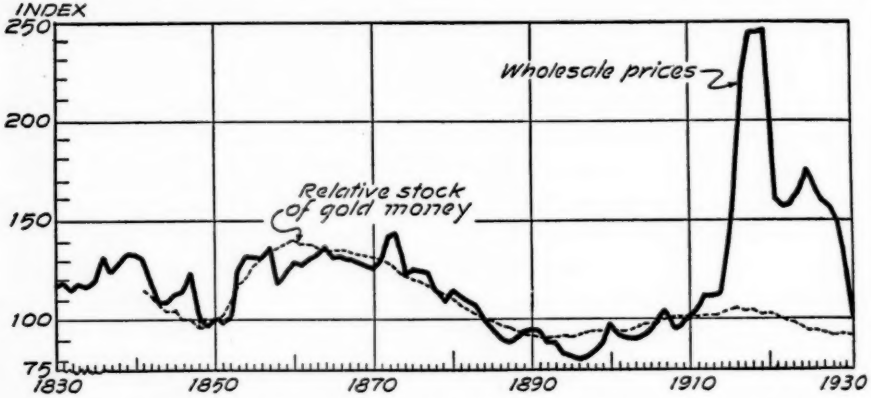


FIGURE 7. Ratio of World Gold Stocks to Stocks of 1850 Increased by 3.1 per cent per year Compared with Prices in England, 1839-1931. (1850 = 100.)

For sixty years before the war, wholesale prices rose in England, when gold stocks increased faster than 3.1 per cent and fell when they increased less rapidly. The world war period was an exception, but pre-war relationships were approximately restored before England suspended specie payment.

groups, those who ascribe our monetary problems (1) to world-wide shortage of gold, (2) to a maldistribution of gold, or (3) to bad management of credit.

### *Monetary Stocks of Gold and Prices*

Kitchin[26] has demonstrated that there is a striking relation between monetary stocks of gold and the general price level. When the monetary stocks of gold increased at the rate of 3.1 per cent per year, commodity prices in England were stable (Figure 7). From 1850 to 1910, the world monetary gold increased from 54,000,000 fine ounces to 340,000,000.[27] If the 54,000,000 fine ounces of gold in 1850 is compounded at 3.1 per cent annually, it gives 337,000,000 ounces in 1910 and the ratio of the actual gold

[26] Kitchin, J., *Interim Report of the Gold Delegation*, League of Nations Document C 375, pp. 79-85. September 8, 1930.

[27] Warren, G. F., and Pearson, F. A., *Relation of Gold to Prices*. Farm Economics No. 69, pp. 1460-5. February, 1931.

to this is 101. The actual supply was one per cent more gold than this rate of increase would call for and wholesale prices were one per cent higher than in 1850 (Figure 7). During the World War, commodity prices were not in their usual relationship to gold, but during 1931, prices reached their pre-war relationship to gold.

A similar comparison for the United States indicates that

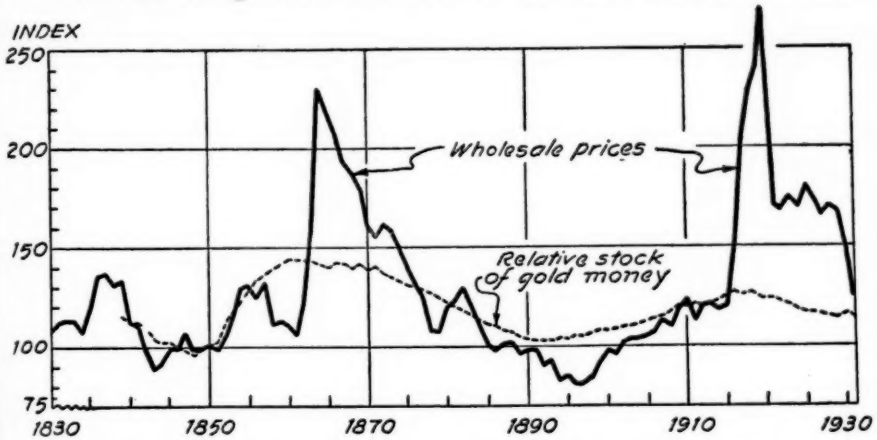


FIGURE 8. The Ratio of World Gold Stocks to Stocks of 1850 Increased at the Rate of 2.8 per cent per year compared with Prices in the United States from 1840 to 1931. (1850 = 100.)

Prices in the United States rose and fell with variations in the relative world stocks of gold except during the Civil War when paper currency was used and during the World War when there was little demand for gold. Pre-war relationships were restored in 1931.

when the world's monetary stocks of gold increased 2.8 per cent, prices were approximately stable (Figure 8). During the Civil War, wholesale prices, which were on a currency basis, did not move in harmony with gold. By 1880, wholesale prices reached the normal gold relationship. The same general principle holds for prices in Germany, France, and Denmark (Figure 9).

In short periods of time, prices vary from this long time relationship. For sixty years before the war, prices in England were rarely as much as 10 per cent out-of-line, and were rarely out of adjustment for many years. The longest period was in the nineties.

*Regardless of the differences in the commodities included in the index numbers and regardless of the banking systems, there appears to be a definite and uniform rate of increase in monetary gold stocks necessary to maintain stable prices. If monetary*

*stocks of gold increase faster than this normal rate, prices rise. If the stocks of gold increase less rapidly than this normal rate, prices fall.*

If the price structure is adjusted to a commodity price level of 150, and if prices fall to 100, a large part of the monetary transac-

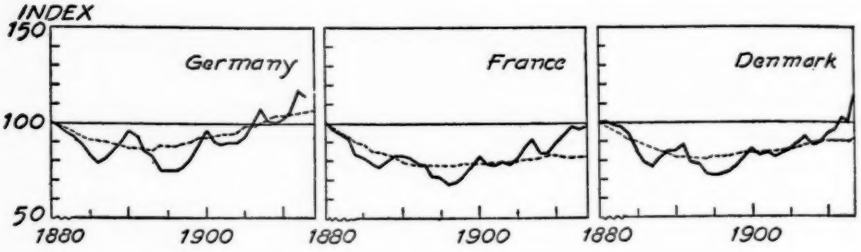


FIGURE 9. Ratio of World Gold Stocks to Stocks of 1880 increased by 2.6 per cent for Germany, 3.4 per cent for France, and 3.1 per cent for Denmark compared with prices in each country, 1880-1914. (1880 = 100.)

Wholesale prices in France, Germany, and Denmark followed relative world monetary stocks of gold.

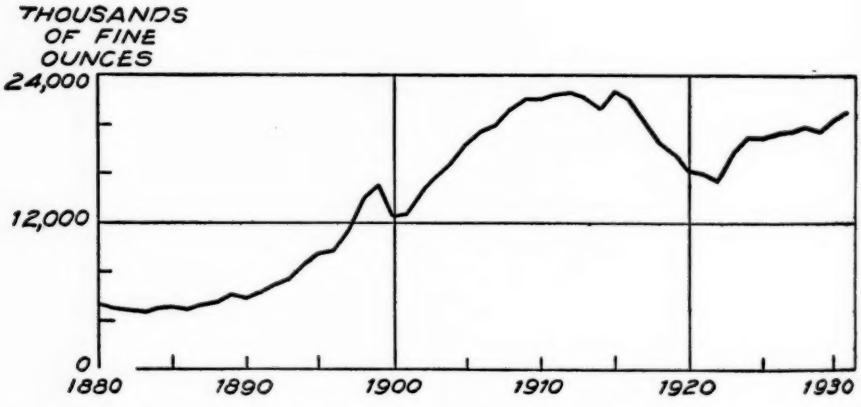


FIGURE 10. World Production of Gold, 1880-1931.

Production in 1931 is about the same as production 23 years ago. World business has increased greatly in this period.

tions are left at levels of 100 to 200. Freight rates, taxes, debts, prices of controlled commodities, rents, retail prices, wages, are all far above pre-war levels. This throws the burden of adjustment on wholesale prices that are not controlled. Probably this explains the fact that from 1885 to 1900 commodity prices were generally below normal gold ratios.

### *World Gold Production*

If the world gold stocks must increase at a fairly uniform rate to maintain stable prices, we must turn to world gold production to see if it is keeping pace with the normal rate of increase.

With the discovery of precious metals in the western hemisphere, the stocks of gold and silver increased very rapidly. From 1810 to 1845, the world's gold production was low. From 1850 to 1860, the production mounted rapidly, due to discoveries in Australia and California. Thereafter, gold production declined and reached a low ebb in the nineties. This in turn was followed

TABLE 1. MONETARY GOLD, MONEY IN CIRCULATION, AND BANK DEPOSITS IN THE UNITED STATES ON JUNE 30, 1880–1930
(AVERAGE FOR 10-YEAR PERIODS)

| Period or year | Total money* 000,000 omitted | Monetary gold coin and bullion* 000,000 omitted | Total monetary circulation† 000,000 omitted | Total individual deposits‡ 000,000 omitted | Percentage of gold to total money* | Percentage of gold to monetary circulation | Percentage of gold to deposits |
|---|---|---|---|---|---|---|---|
| 1880–89♯ | $1488 | $ 563 | $1222 | $ 2,988 | 37.8 | 46.1 | 18.8 |
| 1890–99 | 1845 | 699 | 1628 | 4,962 | 37.9 | 42.9 | 14.1 |
| 1900–09 | 2906 | 1349 | 2596 | 10,792 | 46.4 | 52.0 | 12.5 |
| 1910–19 | 4722 | 2290 | 3702 | 21,210 | 48.5 | 61.8 | 10.8 |
| 1920–29 | 8422 | 4029 | 4861 | 44,510 | 47.8 | 82.9 | 9.1 |
| 1924 | 8847 | 4488 | 4849 | 42,904 | 50.7 | 92.6 | 10.5 |
| 1925 | 8304 | 4365 | 4815 | 46,715 | 52.6 | 90.7 | 9.3 |
| 1926 | 8429 | 4447 | 4885 | 48,827 | 52.8 | 91.0 | 9.1 |
| 1927 | 8667 | 4587 | 4851 | 51,062 | 52.9 | 94.6 | 9.0 |
| 1928 | 8118 | 4109 | 4797 | 53,245 | 50.6 | 85.7 | 7.7 |
| 1929 | 8539 | 4324 | 4746 | 53,138 | 50.6 | 91.1 | 8.1 |
| 1930§ | 8307 | 4535 | 4522 | 53,564 | 54.6 | 100.3 | 8.5 |
| 1931 | 9080 | 4956 | 4822 | 50,485 | 54.6 | 102.8 | 9.8 |

* Statistical Abstract of the United States 1930, United States Department of Commerce, 52nd Number, p. 246–7. 1930.

† From 1880 to 1899 inclusive, Statistical Abstract of the United States 1923, Number 46, p. 605, 1924; and from 1900–1929, from Statistical Abstract of the United States 1930, Number 52, p. 247. 1930.

‡ From 1880–1914, Statistical Abstract 1923, Number 46, p. 798, 1924, and from 1915–1929 from Statistical Abstract of the United States 1930, Number 52, p. 262. 1930.

♯ Six-year average, excluding 1884–86.

§ Annual Report of the Comptroller of the Currency, December 1, 1930, p. 57 and 138. 1931.

by a rapid increase and a new peak in production was reached in 1910-15 (Figure 10). The known mines were passing their zenith of production and during the World War period, high commodity prices and wages curtailed gold production. Gold production is increasing, but for 1931 it is still less than it was twenty-three years ago.

The statement is often made that there are more gold stocks now than ever before. This is true, but there is more business than formerly. The volume of bank credit sustained by a given weight of gold has increased but this was increasing before the war (Table 1). Yet gold production had to increase along with other things to maintain stable prices.[28]

[28] A possible explanation of this is that the increased credit sustained by a given weight of gold has increased no more rapidly than the increased business sustained by a given volume of

All these contentions ignore the fact that the world debt structure and all price relationships are in approximate adjustment with a commodity price level of 150. If the price collapse is to be overcome, it is not enough to explain that gold is sufficiently abundant to sustain pre-war prices. A given weight of gold must sustain a phenomenal increase in the amount of business, if prices are to be restored—that is, if this is to be a cycle and not a price catastrophe. A decrease in efficiency is more probable.

Since 1880, the monetary circulation supported by one dollar of gold has been steadily declining. In recent years, the circulation is only slightly greater than the gold coin and bullion. This shows a decreasing efficiency in the use of gold in supporting circulation. Bank deposits for each dollar of gold have increased. This credit structure was extended so far in 1928 and 1929 that a reaction came. Much is said about the sterilization of gold by the United States. It was certainly not sterilized so far as bank deposits were concerned.

Neither these data (Table 1) nor the experiences of recent years indicate that gold is used much more efficiently than formerly. Throughout the world, confidence has been so shaken that a decrease in efficiency in the use of gold is to be expected for some time.

### *The Maldistribution of Gold*

A large number of economists believe that our difficulties arise from monetary causes but maintain that there is no world-wide shortage of gold and that our difficulties are due to maldistribution and inefficient management of what otherwise would be adequate gold stocks.

In 1914, the United States had about one-fourth of the world's monetary stocks of gold compared to more than two-fifths in 1930. The United States had a large amount of gold in 1929 but in order to sustain the business structure, the bank credit was high in relation to gold. Apparently this gold was fully used.

After the stabilization of the franc and the return of prosperity and confidence in France, gold began to flow to France. The low level at which the franc was stabilized contributed to the imports of gold. France now holds 21 per cent of the world's monetary gold compared to 14 per cent in 1913.

There is no doubt that these unusual changes in the world's

production. Increased fabrication and increased commercialization have been occurring. As we change from home baking to purchase of bread and from the purchase of bread to eating in restaurants more transactions are involved. Whether or not this is the correct explanation is not material.

gold supply have been a disturbing factor. This raises the fundamental question, is it the amount of the world's monetary stocks or the location that has caused the price collapse?

In order to test the effect of changes in the location of the world's gold stock on prices, the monetary stocks of gold in the United States were related to our price level in precisely the same way as the world gold stocks were related to our price level. (Figure 11.)

From Figures 8 and 11 it is obvious that the United States

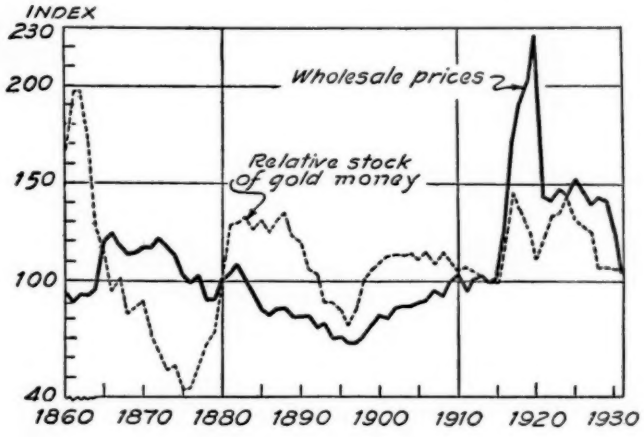


FIGURE 11. The Ratio of the United States Stocks of Gold to Stocks of 1880 Increased by 5.1 per cent per year Compared with Prices in United States, 1860-1930. (1880 = 100.)

Prices in the United States are more closely related to world gold stocks (figure 8) than to stocks in the United States.

value of gold, that is, the price level, is more closely related to the world's gold stocks than to monetary gold coin and bullion in the United States.

In 1880, the United States had about one-tenth of the world's monetary stocks of gold; in 1900, about one-fifth; and in 1914, about one-fourth. It has been a normal procedure for the United States to accumulate an increasing proportion of the world's gold supplies.

If the United States had continued to increase its share of the world gold stocks at the pre-war rate, it would now have somewhat less than two-fifths of the total. It now has about two-fifths of the world stocks.

The same principle holds for Germany. From 1880 to 1907, the

value of gold in Germany, that is the general level of commodity prices, was more closely related to world gold stocks than to stocks in Germany. In 1880, Germany had about 13 per cent of the world's monetary stock of gold; in 1890, about 17 per cent; in 1900, about 18 per cent; and in 1907, about 17 per cent. Although the proportion of the world's stocks of gold held by Germany has apparently remained somewhat more stationary than for the United States, the value of gold in Germany was more closely related to the monetary stocks of gold of the world than of Germany.

The very people who have told us that the price of wheat is determined by the world wheat supply and is not determined by the location of the supply now tell us that the value of gold, that is, the price level, is largely influenced by location of the supply rather than by the world supply. There is no doubt that the distribution of gold, as well as the distribution of wheat, has some bearing on local price, but the fundamental price difficulty is the base upon which the structure rests—the world quantity of gold available for monetary uses.

### *Prices Since 1914*

The rise in prices in countries that continued to use gold during the World War period is to be explained by the fact that a large part of the world ceased its demand for gold. The small demand made gold cheap, exactly as the recently reduced demand for silver in India made silver cheap in all countries.

In the last few years one country after another has been frantically bidding for gold. Even countries that were formerly satisfied with silver have been moving toward a gold basis. One of the activities of bankers and economists in recent years has been aiding these movements.

Most of the populations of the world have had sad experiences with currencies. This lack of faith makes it desirable for each country to hold an unusually high gold reserve. Even in the United States a little gold hoarding began before the Panic of 1920 and there has been some gold hoarding this year.

Because of the few countries using gold and the small demand for it, the gold-using world became fairly well adjusted to a price level of about 150.[29] But there has been a decrease in gold production and monetary stocks have not increased at the normal

[29] France, Italy, and a number of other countries reduced the amount of metal in their money so that their price levels are much higher but are not higher when compared with a given weight of gold.

rate. When all the countries returned to a gold basis, we were in the position of attempting to sustain a price level of 150 with gold stocks about sufficient for a price level of 100. The price collapse occurred while the shift to gold was being made. To have maintained a price level of 150 would have required a phenomenal, world-wide increase of about 50 per cent in the efficiency with which gold is used. We have no historical record of such a sudden increase in efficiency. If it ever occurs it will be expected to come gradually and after a long period of peace and confidence in money, not after a period of depreciated paper currencies. After such a period, the more probable relationship is an increased gold requirement in proportion to business.

### *Credit*

Some persons hold that our present banking machinery could have maintained the price level by a proper handling of credit. Others doubt this but believe that new legislation providing for a bank policy that will attempt to stabilize prices would make it possible. Such efforts are worthy of attention and can doubtless do much to prevent short-time fluctuations when the price level is in approximate adjustment with the gold supply. It does not appear probable that by this plan prices can be restored to the level at which the majority of public and private debts now outstanding were contracted, or to the level at which social relations were most nearly adjusted. If such a price level could be attained for a time, it does not seem probable that it could be maintained.

A given amount of gold will sustain a certain amount of paper money and a certain amount of credit. These amounts vary in different generations. They are based on national and international confidence which cannot be changed by law.

To attempt to change the relative value of gold to all commodities is much like attempting to change the relative value of wheat to all commodities. The world has been having extended experiences in attempting to hold up the price of wheat, cotton, sugar, rubber, and other commodities in which some group has been interested. This can be done within a tariff wall if the country has a perpetual deficit. It has not been successful on world markets.

To attempt to keep prices high is attempting to keep gold cheap. This is the same problem as attempting to hold down the price of food. This again is possible for a time by prohibiting exports if the nation has a perpetual surplus. But this has not been

successful on world markets. Theoretically it might be done for gold in a country that had a perpetual surplus production of gold. It would be extremely difficult with a commodity of such high value and one which is so easily concealed and so easily exported as gold. The point at which a population ceases to have confidence in currency cannot be regulated by law.

To attempt to keep the price level of one country far above the world level requires the suspension of the privilege of going to a bank and asking for gold. Confidence is such a timid creature that this very act increases the demand for gold. Nor can international agreements control how much paper money a man will offer for gold when his government refuses to give gold for paper. Fixing the value of gold is a more difficult problem than fixing the price of wheat or rubber or coffee.

### *The Future of Prices*

The extremely low production of the last two years is causing such a shortage of consumption goods, that sooner or later some rise in commodity prices will occur. No large advance in the general average for all commodities can be brought about by this means alone. It will probably require several years to liquidate the equities in city real estate that have been wiped out by the fall in commodity prices. When such a tremendous liquidation occurs, the multiplicity of sellers and absence of buyers wipes out still further owners who would have an equity were it not for the panic. Since this will probably last three or four years, little activity is to be expected in the building industry.[30] Any business cycles that occur in such a period are suppressed cycles. If the demand for gold should suddenly and strikingly decline, all this would be changed.

In 1931 many countries discontinued the gold standard. If they remain off the gold standard long enough and cease to bid for gold, the reduced demand will reduce the value of gold, that is, raise the price level. There is some possibility that this may occur, and a slight possibility that some change in the standard will be made that will reduce the demand for gold. There is no way of telling what these legislative acts will be. If the Federal Government or credit agencies established by it issue a large amount of bonds and if provisions is made for discounting these

[30] Warren, G. F., and Pearson, F. A., *The Agricultural Situation*, pp. 270-2. August, 1924. Warren, G. F., and Pearson, F. A., *Rents and Prices of Building Materials*, Farm Economics No. 62, pp. 1179-81. November, 1929.

by the Federal Reserve banks, the price collapse may be stopped and a recovery in commodity prices may occur.

The immediate price outlook is dependent on the action of other countries in bidding for gold and the credit policy of this country.

### *The Long-time Outlook*

If England and other countries reduce the weight of gold in the monetary unit as was done by France, Italy, and a number of other countries, this will relieve these countries from a part of the bankruptcies and other calamities caused by the price collapse. By this means they can establish any price level which they desire, and can establish one that is in adjustment with the level at which debts were contracted and the level to which freight rates, taxes, wages, fees, and other human affairs are adjusted. If this is done, it will not reduce the demand for gold. Less gold will be required for a single unit of currency but more units of currency will be used. In fact, such a revaluation makes it easier for a country to accumulate gold, because while the internal price level is high, fixed charges and wages are in adjustment with prices so that costs of production are less than in countries that are deflating. Such a revaluation discourages imports and favors exports. The increase in the gold supply of France is due in part to these causes. Such a procedure is injurious to the country that does not revalue its currency, and will make the price level in such a country at least as low as if all countries deflated.

If the countries that formerly used gold all return to it, the general commodity price level may be expected to go below prewar.

The discovery of new gold mines is more likely to occur when a vigorous search for gold is made, but such discoveries are largely fortuitous and decades may elapse before they occur. After they do occur, it takes several years for the new gold to become effective.[31] Additions to the gold supply began to be greater than the additions to business in 1894, but prices continued to decline until 1897. Unless the demand for gold is reduced by a large number of countries, the probabilities are that the price level will continue to decline subject to cyclical fluctuations. Of course some individual commodities that are far below the general level of commodity prices may be expected to rise.

[31] Warren, G. F., and Pearson, F. A., *Relation of Gold to Prices*, Farm Economics No. 69, pp. 1460-5. February, 1931.

*Effects of Falling Prices*

The farmer suffers from falling prices because he has a high capital investment per worker and his business has a slow turnover. It will be a long time before the calf raised in 1929 has disappeared from the herd. If debts were incurred in producing the calf, these debts may be calling for interest payments after the cow has ceased to give milk.

Falling prices reduce buying. Dealers and consumers finding that they could have purchased at lower prices if they had waited, take the attitude of why buy today, prices will be lower tomorrow.

It is commonly believed that those who live on interest from bonds or other forms of indebtedness gain by being paid in dollars that are more valuable. But they are generally losing because so much of the principal is lost.

Hospitals and insurance companies and other endowed institutions suffer.

The laborer loses whether employed or unemployed. The house that he built shrinks in value the same as other people's investments.

The purchasing power of wages normally increases at about 1.71 per cent per year[32]—about the same rate as production per worker increases. From 1840 to 1914, the production per capita increased at the rate of 1.73 per cent.[21] Production and wages cannot get far apart. We consume what we produce and the laboring classes and their families are the best and most important market for American products.

Whenever we have financial inflation or deflation, a serious discrepancy occurs. The inflation of the War of 1812, the Civil War, and the World War, raised prices more than wages and the purchasing power of wages was very low. The deflation following the War of 1812, the Civil War, and the World War, left the purchasing power of wages high. The present deflation is consequently accompanied by high purchasing power of wages. This so-called high purchasing power of wages is not so favorable as it appears to be, because large numbers of persons are frequently unemployed and the danger of unemployment always confronts the worker, promotions are not granted, people have to accept a lower grade of work than that for which they were trained.

After the War of 1812, prices were reduced one-half and wages declined 19 per cent.

After the Civil War, prices declined one-half and wages de-

[32] $Y = 32.325\ (1.0171)^x$

clined 15 per cent. Since the World War, prices have declined one-half and wage declines have started. When the work was done by slaves, the price of slaves varied with the price of commodities (cotton). Every step in the progress of civilization results in improving the status of the working man and makes wages less like a commodity, and wages therefore change more slowly in periods of inflation or deflation.

Some persons hold that the teacher, government official, and other white-collared groups are favored by declining prices. However, many are unemployed. Those who are employed lose on their investments in property and securities the same as other people do. Their houses may sink in value below the mortgage. The index numbers of cost of living cover food, rent, clothes, and fuel. They do not include hired labor, doctor's fees, dentist's bills, hospital charges, books, railway fares, education of children, telephones, and insurance premiums, which have not declined. To able persons on fixed incomes, the most serious consequence of declining prices is the loss of promotion and this may be greater than any cut in salaries that is in prospect.

There are indications that the salaried groups, endowed institutions, bondholders, and others having what appeared to be fixed incomes, are about ready to cast their lot with the farmers and owners of city buildings, and be willing to take their chances with stable or slowly rising prices.

Declining prices make the nation grow poorer because millions stop producing while they are unemployed.

### *Correct Diagnosis Vital*

Is the present situation due to over-production of commodities, to low demand, or to a crash in the price level due to maldistribution of gold or to adjustment to the world gold supply, or to some other cause? There is little hope for progress in a solution until those who ought to know acumulate and examine the evidence in a scientific manner and reach some semblance of agreement as to the cause of the difficulty. Of one thing we are certain, that a modern social structure of taxes, debts, wages, freight rates, is too complicated a machine to stand a decline in the price level from 150 to 100. The millions of human catastrophes are so great that all kinds of unsound actions, both public and private, are occurring and the end is not yet.

It was not the fault of gold that prices rose. The rise was due to decreased demand for gold arising from the financial policies

of warring nations. The decline is due primarily to the restoration of previous gold relationships to prices, and is due in part to a shortage of gold.

It makes no difference what caused prices to rise. Having become adjusted to a commodity price level of about 150, we cannot afford to risk the injury to society that will result if commodity prices are lowered to 100 or less and all other human relationships adjusted to this basis.

Because of the belief that the difficulties are due to over-production and that they are temporary, innumerable emergency measures are proposed, designed to aid this or that group for the few months before the depression is assumed to be over. Since the problem is not over-production and is not temporary, this type of legislation will inevitably result in bitterness and disappointment.

### *Remedies*

Before anything can be done to provide a permanently more stable measure of value, there must be a widespread understanding of the relationship of gold, money, credit, and prices, and the relationship of prices to national welfare. It is not to be expected that any perfect means can be devised. However, any measure that will make conditions less bad than at present is worthy of consideration.

There have been a large number of proposals to remedy the situation. The more important of these proposals may be summarized as follows.

1. A definite legal provision for a bank policy that will attempt to stabilize commodity prices under the present banking system.

2. A monetary policy designed to maintain commodity prices at a stable level but which adds to the bank policy plan a requirement to change the weight of the metal in the monetary unit when necessary.

3. The use of two or three metals not as alternates but as provided by Marshall's symmetallism. This is a practical method of accomplishing what the bimetallist desired.

Marshall[33] proposed . . . "that currency should be exchangeable at the Mint or Issue Department, not for gold, but for gold and silver, at the rate of not £1 for 113 grains of gold, but £1 for 56 1/2 grains of gold, together with, say, 20 times as many grains of silver. I would make up the gold and silver bars in gramme weights, so as to be useful for international trade."

[33] Marshall, A., *Money, Credit, and Prices*, p. 65. 1923.

4. The reduction of the metal in the monetary unit. This does not provide for continuing stability of value but is a single drastic adjustment to meet a catastrophe resulting from declining prices. This was done by France, Italy, and many other countries, and is being discussed in England and most of the remaining countries of the world. Suspension of the gold standard is a temporary measure adopted by many nations which checks bankruptcies and other effects of price collapse and gives time to decide on what to do next.

None of these proposals are antagonistic and any combination of the above four proposals could be made.

5. Instead of revaluing the currency as France has done, Germany is avoiding the maladjustment due to deflation by revaluing everything except money. Debts in East Prussia were reduced 50 per cent. For all Germany, wages and salaries have been reduced 10-15 per cent; interest rates 14-25 per cent; rents and freight rates about 10 per cent; and prices fixed by industrial concerns are lowered 10 per cent. A price dictator has been appointed to complete the process. These measures are as drastic as the methods used by France but are more cumbersome.

The world has had innumerable experiences with plans to prevent prices from rising. But such a writing down in the whole price structure has rarely been attempted.

Apparently most of the world is ready to adopt some drastic measure rather than wait for the gnawing processes of deflation to run their course.

6. The alternative to some monetary remedy is completion of the process of price collapse. If commodity prices are to remain at pre-war or fall below pre-war, all other things can be adjusted in time. Probably most of the owners of property who are in debt will lose their properties. Some who have their properties paid for will lose them because of taxes. Some units of government will be bankrupt. Some adjustments are made quickly and others will require a generation or more. Probably most of the mortgages on city real estate will be adjusted and most of the bank failures will occur in from three to five years, but much of the foreclosed property will probably not be disposed of for some years. If commodity prices should remain stable at present levels, much of the adjustment can be made in the next five years and the entire process could be fairly well completed in a generation. It takes much longer to make adjustments to a price collapse than it does to make adjustments to rising prices. During such

a process, the periods of full employment will be short and periods of unemployment long and severe. Instead of fluctuating from labor shortage to labor surplus, the fluctuations will mostly be from some unemployment to much unemployment.

## Discussion by M. A. Copeland

University of Michigan

In considering the probable trend of the level of prices of commodities at wholesale in the United States during the next decade, three chief groups of factors should be taken into account: (1) monetary and credit factors, (2) changes in technology and the geographical distribution of industry and trade, and (3) the development of market organization. Economic theory has too often concentrated on the first of these groups of factors, slighting the second and third groups by assuming that "other things remain equal." It is here contended that these two latter groups are of paramount importance. In the course of the argument recognition will be given to certain factors which come under none of these three headings.

The money and credit factors will be briefly considered first. The level of commodity prices at wholesale has too often been confused with that general price level which is an item in the equation of exchange, $MV = PT$. The level of commodity prices at wholesale is not only *not* identical with this general price level, P, but it is only a small constituent part. The dollar volume of transactions in the United States in 1929 was probably over $1,100 billion. Commodity transactions at wholesale and retail were probably not responsible for more than $250 billion or 23 per cent of this volume. Wage rates, security prices, rents and real estate prices are also constituents of this general price level, and it is important to note that the behavior of these other constituents differs markedly from the behavior of the commodity price level both in cyclical movement and in trend. For this reason we must be careful not to assume that if monetary factors influence the general level of all types of prices involving money work, they will necessarily exert an equal percentage influence on the commodity wholesale price level.

In appraising the probable importance of the influence of monetary and credit factors upon commodity prices we must take account of the ways in which such influence may be exerted. Professor Pearson offers a correlation between (a) English commodity prices and (b) world gold stocks relative to an arbitrary trend. The correlation is for two major cycles covering a period of 90 years. (The similar correlation for other countries does not appreciably increase the significance of his sample of two cycles, since there is a close correlation in these major price cycles in the several countries, which correlation is readily explainable in terms of a causal analysis not involving world gold stocks). Professor Pearson does not, so far as the writer can discover, explain the mechanism by which world gold stocks affect English prices. In view of the questionable status of the theory of sampling as applied to time series even for a larger sample than two and in view of his arbitrary trend adjustment, Professor Pearson ought not in the writer's opinion to make the logical jump from correlation to causation, unless and until he can explain the mechanism of the influence of world gold stocks on English price, and explain also the changes in that mechanism during the past century.

The writer suggests the following as the principal modes of influence of money and credit on commodity prices: (1) a wide variation in exchange rates tends to produce a sympathetic variation in domestic commodity prices, particularly in the

prices of the so-called unsheltered commodities; (2) the issue of currency not backed by collateral as a means of financing governmental purchase of commodities may raise commodity prices by increasing demand. This effect might equally be produced by a more approved form of government financing such as Liberty Bonds. Nor is this effect confined to government finance. International private loans may exert a supporting influence on commodity prices. It is important to note that for all of these so-called inflationary influences, the influence is temporary unless balance sheets show an ever increasing fund of indebtedness, or unless the initial impetus from borrowing serves to inaugurate or enhance an upward swing of the business cycle; (3) national monetary gold stocks, along with many other factors, exert an influence on interest rates. Interest rates in turn, along with many other factors, exert an influence on commodity prices.

For the calculable future of the United States, we may probably neglect the possible effect of mere dollar exchange rate fluctuations. And while government financing of current purchases during the present depression by borrowing may help to moderate the decline or promote recovery in a cyclical sense, it is not likely to be important for the trend of prices. So also foreign loans are likely to exert a cyclical upward pressure during recovery. But that the international balance sheet will show a sufficiently rapid accumulation of indebtedness to us to influence greatly the trend of our commodity price level may well be doubted. The most plausible case for a monetary or credit influence on the trend of our commodity price level is that a shortage of gold stocks in other countries will make for high interest rates and high rates for a downward or a lowered trend of commodity prices abroad and so for a downward or lowered trend in the United States, at least among unsheltered commodities.

Whether there is or has been in the past ten years a shortage in the world total of monetary gold stocks clearly cannot be determined by a pre-war comparison such as Professor Pearson makes. It can only be determined by an inventory of present local credit base requirements, for credit base requirements, including our own, have undergone important changes. Whether or not there has been a world shortage, there have been local shortages. Moreover, whether or not there has been a world gold shortage, it is to local shortages that we must look if we are to trace the mechanism of the influence of gold upon commodity prices, for it is shortages relative to local requirements that affect interest rates.

Professor Pearson finds it paradoxical to argue that the price of wheat is determined by international conditions, while emphasizing the local aspect of the relation between gold and commodity prices. The writer suggests that this is because he fails to analyze the difference in mechanisms involved in the two cases. The local shortages of gold and high interest rates which England has experienced have probably been a factor in the rapid general downward trend of English commodity prices since 1925. But the fact that the English index has trended downward more rapidly than ours since 1925 is due in part to the differences in make-up of the two indexes. Raw and semi-manufactured foods (with exception of meats) and the basic materials of industry, have a considerably larger weight in the English index. An identical group of such items have approximately 64 per cent of the total weight in the English index as compared to 32 per cent in ours. Since these commodities have been the ones declining most rapidly on the whole, it is clear that weighting alone would account for a considerable part of the more rapid decline of the English index. Furthermore, since the downward trend of commodity prices in Germany since 1925 has been less marked than in either England or the United States and this in spite of the high level of German interest rates, it is doubtful whether we should look to monetary and credit factors as the chief explanation of this decline.

In considering whether national gold shortages are likely to lead to high interest rates and so to a lowered trend of prices in say the next ten years, we should note that such shortages are necessarily shortages relative to established legal or customary requirements. History affords numerous examples in which a shortage of bullion relative to established requirements has resulted not in permanently higher interest rates but in a modification of established requirements. To maintain established requirements in the face of a continued bullion shortage is by no means a popular policy. High interest rates exert a depressing effect not only on commodity prices but also on the volume of business—or rather high rates tend to depress commodity prices by exerting a depressing effect on business. Moreover, the present condition of credit base requirements may fairly be described as a state of flux. The Bank for International Settlements offers important possibilities of modification of these requirements. It is conceivable that a sufficient number of important nations will, during the next decade, (a) have persistent gold shortages relative to established requirements (b) maintain said requirements and in so doing raise interest rates in the face of popular opposition (c) suffer as a consequence repeated recessions of business, so that world commodity prices will show a considerably steeper downward trend or a considerably lower upward trend than they would have shown in the absence of such gold shortages. But this combination of events in a sufficient number of important countries seems unlikely. I venture to think it is also unlikely, assuming that a revision of war debt settlements might conceivably lead to a serious depletion of our gold stock, that we would adhere with sufficient rigor to our present credit base requirements to produce an important depressing effect on the ten-year trend of our commodity price level. By way of recapitulation I suggest that credit expansion is likely to support an upward cyclical movement of commodity prices say during the next two or three years, but that it is unlikely that the trend during the next decade will be greatly influenced by monetary and credit conditions.

Let us turn now to the second and third groups of factors affecting prices: (2) changes in technique and geographical shifts and (3) changes in market organization. I suggest that the second group of factors has played a major part in the downward trend of prices since 1925. In this connection three points should be noted about Professor Pearson's attempted refutation of the "overproduction theory."

(1) He argues that the rate of increase in production has recently been less than in the seventy-five years before the Great War, and hence that there cannot have been recent overproduction. He evidently assumes his base period was not one of "overproduction." Whatever overproduction may mean, most of his base period was one of declining prices, technical change and geographic shifts.

(2) To investigate overproduction for many of the commodities he deals with certainly requires world and not local data.

(3) The theory that technical change and geographic shifts tend to depress prices is to be distinguished from the "overproduction" theory, for such changes may involve decreased production cost or declining demand. These influences do not necessarily show an increased rate of production growth. Improved technique and the development of new areas and resources have manifested themselves in declines in production costs and demoralized markets in many basic and staple commodities, e.g., sugar, coffee, cotton, wheat, silk and rayon, copper, tin, petroleum, rubber, and paper.[1] Changes in technique have also brought important declines in the demand for many basic commodities, either through cheapened cost of substitutes or through more

[1] The writer wishes to acknowledge the assistance of the Federal Reserve Board Division of Research and Statistics by giving him access to certain statistical data which he used as a background for this argument.

economical use, notably coal, leather, wool, lumber, hay. All this is but a renewal of the downward trend of prices during the nineteenth century incident to the technical changes and geographic shifts of the industrial revolution. The new phase of that revolution which we are now experiencing must be accounted a major factor in the downward trend of commodity prices since 1925. The effects of declining demand due to substitutes and to more economical use, and of increased supply and lower costs of basic materials have permeated the entire structure of our system of prices.

The present period of price decline has often been compared to that following the Civil War. There are important resemblances between these periods, but for the purpose of predicting prices we need also to consider a striking difference. The havoc wrought in markets during the earlier period was by no means confined to the extractive industries. This was the period of railroad rate wars and of extreme cutthroat competition in manufacturing. Two major developments marked the end of this earlier era of declining prices at the close of the century: (a) the passing of the American frontier and (b) the growth of restraints upon price competition, particularly in manufacturing and transport. These restraints included widespread consolidation, monopoly of strategic features such as pipelines, communities of interest, price leadership and trade ethics, branding of goods, and other devices for division of the market, and government regulation of railroad rates. There followed these developments a pronounced and fairly steady upward trend of commodity prices extending over a peace-time period of some fifteen years beginning about the turn of the century. If we expect the augmented commodity demand of war-time, this period is unparalleled in the history of major countries which have undergone the industrial revolution, since the inception of that revolution. No doubt a favoring factor in the rise of American prices was our high protective tariff. The upward trend in American prices was more marked than was the upward trend in England, Germany, or France.

On the basis of this brief excursion into the history of prices I suggest that we need to consider the following points as bearing on the trend of our commodity price level during the next ten years: (1) Technical change and geographic shifts are likely to have an important depressing influence. (2) Geographic shifts may be halted as the world's moving economic frontier encounters physiographic, political, or cultural barriers. (3) Market organization on the seller side tends to give an upward thrust to the commodity price level. (We may add parenthetically that it tends to give a greater stability to our structure of prices.) (4) A high protective tariff facilitates a more marked upward rise of domestic prices.

First, let us consider technical change. There is reason to suppose that the disturbances of the World War have given a new impetus to the industrial revolution, that we have actually been experiencing a new phase of that revolution. Manufacturing has been electrified and factory planning has yielded a rapid increase in output per employee. The machine technique has made an entry into coal mining, an industry that has until recently been a stronghold of the handicraft system. Railroad operating efficiency has made rapid strides in the past decade, while railroads have been in part displaced by highway transport. These points are mentioned as illustrative only.

The progress of technical change appears historically as one in which a sudden spurt is followed by a declining rate of change. It may well be that the momentum of the post-war spurt is already partly spent, that the changes of the 1930's will be less marked than those of the 1920's. But there are important technical changes in prospect, particularly in the fields of transportation and the supplying of energy.

Not all types of changed technique are equally significant for our present problem. Improved methods of manufacturing under present conditions have a relatively slight effect on basic and staple commodity prices. They do affect in an important way new highly elaborated articles like radios and electric refrigerators, but such articles have little or no representation in existing wholesale price indexes. The most important effects of changed technique for our commodity price indexes are those which lead to opening up new areas and new resources. Changes in mode of energy supply and in transport have had effects of this sort in the past, and may have again, but technical changes which permit the substitution of a cheaper for a dearer basic commodity have recently played a more striking part in this connection and are likely to be of chief importance during the next decade. Even if the momentum of the new phase of the industrial revolution is partly spent, technical changes leading to raw material substitutions—and perhaps changes in the field of energy supply and transport—are likely to prove an important depressing influence on commodity prices during the next decade.

We may consider next geographic shifts and the opening up of new resources. There have been important shifts in the field of manufactures since the War, but these and the technical improvements in manufacturing processes have been largely offset by rising wage rates. A rough indication of the margin between raw materials and finished products is afforded by the ratio of census "cost of materials" to "value of manufactures." This ratio declined from 57.2 per cent in 1925 to 54.3 per cent in 1929. Apparently raw material costs have declined more rapidly than the margin in manufacturing, so that we can hardly look to the declining margin as the main explanation of declining prices.

On the other hand, an examination of recent price movements of various specific staple manufactured commodities shows a close correlation with their raw material costs both in direction of trend and in shorter-time movements. And in most cases the recent downward trends can be readily traced to increasing supplies or lowered production cost of raw materials or to decreased demand due to competing commodities and services or more economical use. The most important geographical shifts for price changes in recent years have been in the extractive industries, and this, I think, is likely to continue to be true during the next ten years.

I can only pause to mention the possibilities of new areas of development for agriculture and animal husbandry in their broadest sense (including rubber, coffee, sugar and silk) and of similar possibilities for the opening up of raw mineral resources. The passing of the world's frontier is by no means clearly in immediate prospect, and this all the more because of the likelihood that changing technique will make available many types of substitute resources—new ores, new fibres, new forms of energy, etc. New areas and new resources are likely to be a powerful depressing influence on commodity prices during the next decade.

Let us look now at the other side of the picture. Stronger market organization of the seller side, reinforced by the passing of our frontier (which was then a large part of the world's frontier), brought rising prices from 1896 to 1914. May we look to further strengthening of seller organization, to exert a considerable supporting influence on commodity prices during the next ten years? If strengthened organization is to be effective, it is clear that for many commodities it must be on an international scale, at least to the extent of some type of division of the market. Moreover, it will probably have to overcome a more powerful array of opposing forces than was the case in the early years of this century. Yet I think it not unlikely that developments in market organization may prove of considerable importance, at least outside the field of agriculture proper. Many unsuccessful and ephemeral types of or-

ganization were tried in the latter nineteenth century, to be followed by more permanent and successful types in the twenty years preceding the World War. The present problems of market organization are not altogether new, except perhaps in magnitude. And the basic units for combination are much larger today in many lines. Moreover there is no adequate international legal restraining force to contend with. And the trade disturbing influences of the War are now more remote. It is not unlikely that the efforts at market organization in the 1930's will be considerably more successful than those in the 1920's.

The prospect for the trend of commodity prices then, as I see it, resolves itself largely into two opposing sets of forces,—on the one hand technical change, geographic shifts, and development of new resources tending to depress prices, and on the other efforts at market organization designed to prevent overproduction and demoralization of prices. Whether the price raising and stabilizing forces will be able to overcome or even to neutralize the price-depressing forces in the next decade seems questionable, but the price raising and stabilizing forces are likely to be relatively stronger in the next ten years than they have been in the past six, and the price depressing forces are likely to be relatively weaker.

In considering the trend of prices, however, we will do well to consider certain other factors. The decline since mid-1929 has been distinctly of a cyclical and speculative character. There is a fair presumption that it represents an over-reaction to price depressing influences, and that it will be followed probably during the next couple of years by an appreciable and partly speculative rise. The commodity price level in the early years of the next decade is likely to average somewhat above the low point of the depression. The fact that the full effects of the Hawley-Smoot Tariff Act have probably not yet been realized serves to reinforce this conclusion.

Finally, may I call attention to the fact that the price index, in spite of the large number of constituent items, may be considerably affected by the movements of a few heavily weighted prices. Livestock and meats have served to obscure a considerable part of the downward trend of commodity prices since 1923. And a few commodities with heavy weights and a decided contrary price trend might easily offset the milder movements of other prices in the general average hereafter.

Subject to this qualification I offer the following summary. Monetary and credit conditions are more likely to exert an important influence upon the cyclical movements of the general index of wholesale prices in the next four years than they are upon the ten-year trend. The price level during the next three or four years will probably be somewhat above the low point of the present depression, and somewhat below the level of 1929. On the basis of present indications the odds are slightly in favor of the view that the price level in the latter half of the coming decade will average lower than it will in the next five years.

## Discussion by M. R. Benedict

University of California

Professor Pearson and Professor Warren have carried out a most painstaking and time-consuming study of this important problem, and their conclusions merit most careful consideration. Nevertheless, I find myself in some disagreement, in part with the conclusions reached and in part with the methodology and reasoning whereby the conclusions were reached. Time will not permit extended discussion of either aspect.

The methods used involve a number of knotty problems of statistical technique

which could only be dealt with in a study approaching in scope and detail that which is here under discussion. I shall, therefore, confine myself to mere reference to certain aspects of the statistical procedure which it seems to me will need very careful consideration before we can accept as established the very definite and simple relationships indicated in Professor Pearson's paper.

In the first place, have we any measure of the general price level that is adequate to support the conclusions here drawn? The difficulties in the way of developing even a commodity price index which will achieve general approval are very great. Yet many other factors than commodity prices affect the volume of currency and credit which must be supported by the country's gold base. Payments for personal services, exchanges of securities, the money using habits of people, all affect the volume of money and credit needed to maintain a given level of price relationships. That there is a simple, direct, or constant relationship between these seems to be belied both by observation and by logic. Wages and stock prices have not maintained a stable relationship to the general level of commodity prices; certainly not in recent years, and probably not over any considerable period of time. The Bureau of Labor Statistics all-commodity index is heavily weighted by prices of raw materials, Snyder's index by security prices. No index now available includes the whole group of elements needed to estimate any such precise relationship as that indicated, and the relative weightings used may easily affect the conclusions drawn from the figures. For example, Carl Snyder concluded some years ago that the business cycle was showing a declining amplitude.[1] A similar study of Mr. Edwin Frickey of the Harvard Economic Society for the seven largest centers outside of New York does not show this. Business fluctuations are less violent in small centers than in large. As the clearing system developed, more and more small centers joined the association. In the period covered there has been a gradual expansion of the use of checks from wholesale to retail trade. Retail trade is less subject to cyclical changes than is wholesale trade. This illustrates how easily an indicator which seems to be representing the same thing through a given period may have changed in significance.

The period covered by the figures and graphs shown is so long that the significance of the index, especially that part of it prior to 1900, as related to the 1926-30 base must be seriously questioned. In constructing any composite index, as we get farther from the base, the relatives become more and more widely dispersed until an average comes to have little significance, especially if the distribution is skewed. So pronounced has this view been among leading statisticians that many view with disfavor the use of any fixed base index, and, where countenancing it, do so only for measurement of relationships over short periods of time. When this difficulty is added to the many changes in kinds of production and in the ways of using given commodities, considerable skepticism must attach to any mathematical relationships found.

From 1923 to 1929 the all-commodity price level did not rise materially. Nevertheless, we had considerable expansion of credit in the security markets. It is conceivable that readjustments in wage levels, security prices and other elements in the situation which are now going on may make possible, from the standpoint of available gold, an improvement in commodity prices extending over a period of years. This, however, presupposes a development of credit and currency up to something like what the gold supplies will legally warrant. Whether this development will occur

[1] Carl Snyder, *"A New Clearings Index for Fifty Years."* Journal of the American Statistical Association, September, 1924.

and whether, if it does, it will manifest itself in higher prices are, of course, open questions, but if it does not, the reason will not lie in an inadequate gold supply but rather in how that gold supply is used.

The index of total production likewise presents significant statistical problems. Weighting of the various relatives must be arbitrary since there is no common denominator for physical properties. Yet changing relationships in the amounts of the various kinds of products produced may affect significantly the index arrived at. This difficulty is still further enhanced by the quality of the basic data which must be resorted to as soon as we go back of the most recent years of the series.

When we turn to interpretation, other pertinent questions arise. What are we to assume concerning the velocity of circulation and the economy in using gold supplies? Have these remained the same through all these years, or does it happen that commodity prices have maintained some fixed relation to supplies of gold while all adjustments due to changes in bank structure, money and credit using habits, and velocity of circulation have been reflected in wages, security values, land rentals, and the host of other uses to which money and credit are put? If so, what is the nature of this tie that keeps gold supplies and commodity prices so closely harnessed to each other while other prices cavort over the green pastures of prosperity or drag themselves across the arid deserts of depression? If the logic of such relationship could be found we could look with more confidence on its continuance, assuming its past existence to have been adequately demonstrated.

We have in the past seventy-five years gone through a period in which division of labor and improvement of communication have caused the expansion in trade and in the amount of monetary transaction in relation to volume of production to go on at an unprecedented rate. There has been a rapid transition from relatively direct to very indirect methods of satisfying human wants along with a great increase in those wants. Can we assume that these increases in monetary activity will continue to accelerate at so rapid a pace? If not, may not a slower percentage accumulation of gold be adequate to support moderately higher price levels, assuming such slower accumulation to be in prospect?

We should not too readily accept the view that production of new gold will be at a declining rate. In spite of some conclusions to the contrary it is well to recognize that the rate of new gold production at the present time is only slightly below the annual average for the period 1905-15 which was marked by the highest gold production in the world's history and by a rising price level often attributed by economists to the rapid increase in the world's gold supplies. Not only is this true but there is considerable possibility that we may presently exceed the average annual production of these years.

As to efficiency in the use of existing gold supplies, it must be recognized that we are at present operating under a situation of greatly disturbed political conditions and of badly unbalanced international trade with serious maldistribution of the world's gold supplies; also with a comparatively low velocity in the business world both internally and internationally. If we have any reasonable prospect of a return to more stable political conditions and some degree of sanity in international relationships, these factors appear to point toward a fuller use of existing gold supplies and a higher general price level. Such higher price level may not develop but, if it does not, the difficulty can hardly be attributed to an absolute shortage of gold but rather to unwise use of gold supplies, a situation which leaves a little more room for possible constructive treatment by human agencies.

Recent history has shown that considerable gold may be thrown into inactive re-

serves and not exert a supposed normal effect on prices. This indicates what has already been pointed out by Professor Laughlin and others that the structure of the banking systems of the world and the banking policies adopted may be fully as important as the actual amount of gold available. The value of gold is in fact being held at an artificially high level at the present time. Among other things it seems entirely possible that with the restoration of confidence there will be a substantial redevelopment of the gold exchange standard, especially for commercially dependent countries. This important mechanism for economizing gold supplies has, to be sure, suffered very serious setbacks in recent years and its limitations are most prominently in mind at the present time. With returning stability in international affairs its possibilities will, in all probability, receive more consideration again.

Still another question arises. Will the countries now off the gold standard return to it? A number of very able economists have in recent years advocated the abandonment of the gold standard and operation on a managed currency basis entirely. Mr. J. M. Keynes has been a notable exponent of this view. Probably this will not become a permanent policy. Nevertheless it is a possibility. Mr. Carl Snyder in a recent address on "Gold, The Arbiter of Destiny,"[2] makes the following comment: "It is in view of this that the widespread agitation over a possible 'gold shortage,' for monetary purposes, seems fantastic, and appears to suggest rather the inertia or myopia (or ignorance) of financial statesmanship. In any event, it seems clear that the uncontrolled and unmastered domination of gold, and of the precious metals, over the fortunes of commerce and civilization is passing. A more instructed world will not long tolerate such an anomaly. Silver, once the all-powerful, has long been dethroned. Through the last quarter of a century it has steadily been demonetized by the principal nations, and remains in use only in the backward, hungering and poverty-stricken land of Asia.

"Gold may long continue to serve as a standard; but its practical use is already limited very largely to international exchanges. This means that a large part of the monetary gold stock has now only a nominal or, shall we say, a sort of psychological function; the need of large gold reserves will steadily recede, as it already has in countries like Great Britain, Germany, and the United States."

If many of the countries now off the gold standard do not return to it, we may conceivably have a piling up of gold in those countries remaining on the gold standard in some such manner as occurred during and immediately after the war period. If so, when business revives there might be wholly adequate gold for a continued maintenance of high prices in the United States over a considerable period of time—at least so far as the so-called internal price level is concerned. This may not help and might actually disadvantage farmers as I shall point out later.

Without undertaking to go further in this consideration I feel that the situation warrants the conclusion that there is no adequate basis for assuming that the general trend of the price level will be downward during the next ten to twenty years. There does seem reason to think that over the next few years it is likely to move moderately upward, though possibly at a slow rate. Perhaps the safest assumption is that of going forward on approximately present levels. There seems little warrant for assuming that prices will be materially lower than at present.

As to needed adjustments in the light of this viewpoint, it seems to me there is much more profit in considering the situation of individual commodities than in considering the general price level. It is entirely possible that prices for many

[2] *Proceedings of the Institute of Finance*, Second Session. Occidental College, Los Angeles, March 18 to 21, 1931. An article by Carl Snyder, pp. 22-23.

agricultural products might move upward even though the general price level moves downward. If so, agriculture will be advantaged as compared to present conditions. The reverse also may occur as we have often seen. Serious consideration needs to be given to the nature of agriculture's interest in a stable general price level assuming that stabilization of the price level could be accomplished.

Professor Pearson's conclusions concerning over-production do not seem to me convincing, though much of the difference may center around the definitions used. If demand is shrinking, a maintained production or less may be an over-production. Nor can all types of commodities be put in the same class. Demand for some is readily expansible. For others even a falling relative price may not maintain an earlier rate of consumption. Surely one would hardly contend that we cannot have an over-production of such products as wheat, cotton, and pork. These have shown heavy accumulations in spite of drastic reductions in price. It is to such accumulations that we may best look for indications of over-production rather than to rates of production. A production trend so slightly above that of amounts demanded as to be imperceptible in such a series as that shown may lead to disastrous accumulations or to painfully low prices.

Furthermore, it is to world production that we must look and not to United States production for any answer to the question of whether supply is a significant factor. Even though no very significant difference in rate of production may be needed to bring on accumulation of supplies, several of the major crops cannot be said to have increased only at a slightly faster rate. Since 1900, the population of the world has increased by something like 25 to 30 per cent. During the same time world production of wheat has increased approximately 50 per cent, that of the United States around 25 per cent. World production of cotton has increased approximately 40 per cent. Substantial increases have occurred in some of the other commodities such as tobacco, pork, fruits, etc. Since most of these products are, for the United States, export products, it is world population rather than United States population that is significant. United States per capita production is of little significance in the analysis of the problem. We are a part of a world economy. In the face of this huge increase in production, many of the important consuming areas of the world are in poverty and confronted with a possibly long period of unsettled political conditions, disorganized international trade, and forced low standards of living. The weak demand for manufactured goods is tending to make agriculture more attractive to many Europeans. The other difficulties of the situation are still further emphasized by the problem of securing exchange with which to pay interest on the heavy private and public borrowings from this country.

It seems to me that, so far as agriculture is concerned, the explanation of the present situation is not primarily monetary, though some effect from monetary factors must surely be admitted. If the explanation of the situation were a monetary one the outlook for agriculture picking up would be more encouraging. Unfortunately, the expansion of credit, if it occurs, is likely to be more largely reflected in wages, in security prices, and in commodities which do not have a direct relation to world price levels than in prices of agricultural products. There is, in fact, not very much to indicate that a higher internal price level would be to the advantage of the producer of the major farm products of this country. If we wish to sell in world markets we must meet world prices. Artificial maintenance of prices on export goods either by government or by individuals can result only in turning back upon our own markets excessive holdings. That is disastrous. It seems rather that, if we do not see our way to go entirely onto a self-sufficing basis, it is time for American

agriculture to gird its loins and take the offensive rather than to continue to follow a defensive program of slow and painful retreat. The situation points either to the rapid introduction of methods of production low enough in cost per unit to permit us to compete in the world markets or an attempt, through shifts in production and a land utilization program, to bring ourselves onto a non-export basis.

There is a widespread assumption that the objective of the land utilization program is that of removing from crop production sufficient areas to help in raising prices of the products of the land left in production. Conceivably that can be done for those crops which are produced in such quantity that we do not have to sell them abroad. Are we prepared to go so far in a land utilization program as to remove from production as much as one-sixth of the crop land area? If we do not, are the products which move only into the domestic markets grown in sufficiently watertight compartments that they can be maintained at materially higher prices than those produced for foreign markets? It is possible that this is true in some cases, especially in such products as tree fruits where their control is more feasible than for other farm products. Apparently the land utilization project must aim rather at taking out of agriculture those individuals and those units or areas which cannot meet the competition of this severe international situation without the adoption, on the part of these farmers, of living standards below those they could obtain in some other line of activity in this country. This is economic surgery. We have been trying economic homeopathy with little success. But surgery without anesthetics is not a painless procedure.

Regardless of how we approach the land utilization problem, it must be recognized as a long time program. Granting the speediest and most harmonious development of it that we can conceive and granting its essential soundness, it must be a process requiring many years, in fact it must be a continuous process of adjustment, an attempt to speed up the needed approach to what would be at any given time a stable equilibrium. In the more immediate program credit stands out prominently. No sound credit system can undertake to loan money which it does not seem probable can be repaid. On the other hand, conditions such as those of the present place on money lending institutions an extreme pressure for liquidation of loans, which, while on the borderline, yet present a reasonable possibility of payment if the borrowers can be given comparatively liberal terms and arrangements. The first steps in meeting this situation appear to be those of easing the tension on those loaning agencies which are most under pressure to force liquidation and in opening channels for funds to flow into the agricultural industry where they have been blocked by inadequate adjustments in valuations and by lack of confidence. The most effective steps in this direction appear to lie in such developments as that of President Hoover's reconstruction corporation and the action of the Farm Board and other agencies in setting up finance corporations which can make possible the taking over on intermediate credit funds of sound loans which may now be in the hands of agencies that must, or at least feel that they must, increase the liquidity of their positions. The proposed increase of capital stock of the Federal Land Banks, assuming this to be of amounts and nature such as to develop confidence and make possible the sale of the bonds of these banks, should help materially in providing funds for a gradual working out of the situation and for facilitating the passage of distress lands into the hands of owner-operators. The volume of obligations, both private and public applying to farms is greater than the agriculture of the country can carry at present prices. Much of it will have to be written down and one of the most constructive developments would be that of working out an acceptable basis or formula whereby an agreement could

be reached between debtors and creditors without the necessity of forcing out the present debtor and taking a new one in his place with the accompanying disruption of the farm business and the home life of the operator. We need something in the way of a Dawes Plan or a Young Plan for agriculture.

At the present time transfer of population between agriculture and other occupations tends, in so far as it occurs at all, to be from other occupations to agriculture. There is reason in the light both of analogy and analysis to think that recovery in other occupations may be more rapid than in agriculture. If so, more definite machinery may well be developed for a rational and informed transfer of submarginal farmers into lines of activity which may promise them better opportunities. This, of course, is contemplated to some extent in the proposed land utilization program. Serious consideration should be given to the possibility of lessening the rigidity of the labor structure so that men of this type, many of them very capable and effective workers, may be allowed to proceed with work under conditions and at wages which are attractive to them. The present situation of arbitrarily held prices both in the commodity and in the labor markets, with supply and demand forced into balance by restriction of supply, presents a serious and apparently ever growing handicap to agriculture.

In considering the coming adjustments, we cannot reckon without some thought of the land held and likely to be held by the so-called "unwilling owners." An unofficial estimate places the amount of such land, even in so prosperous and stable a state as Minnesota, at 20 per cent of the total area of the state. This is probably too large and also is probably not for the most part in the significant crop producing sections of the state. Nevertheless, the areas so held now and potentially are enormous, especially from the Mississippi River west. It is conceivable that these will be gradually gathered into holding companies of various kinds and that these companies may decide to look the facts in the face and recognize that these lands cannot be sold by mere sales pressure on a glutted market, that placing them constantly on sale in the show window not only injures such market for land as there may be but prevents the development on these farms of any very efficient operation. With present methods of handling, the quality of the renters operating them will probably decline. No competent renter likes to attempt a stable form of operation on land that may be sold at any time. Those farms which provide a more stable tenure will draw the best tenents. As this comes to be recognized, it is conceivable that these foreclosed lands may be set up on a semi-permanent basis such that efficient operating methods and economic sizes of units may be introduced at a very rapid rate. If so, the possible impact on other farmers of a rapidly increased efficiency and enlarged production which may grow out of this is a thing which needs to be considered. This may not occur. Nevertheless, the stage is set for a possible introduction of such suitable farm organizations and efficient methods on a scale that has never before been possible in the United States. Even assuming that such a movement occurs, its success and effects will of course depend on how it is worked out and managed. Heretofore the first qualifications for management of a corporate farming venture have apparently been a plentiful supply of promotion enthusiasm and a lack of knowledge concerning farm management. This situation may change in the next few years.

Proposals have been and will be made from many quarters for meeting the situation with price level adjustments. In the first place it has not been demonstrated that the price level is controllable. Undoubtedly, the quantity of money and credit in circulation tends to affect prices. Whether such effects can be brought about at will is another matter. Granting, however, that some influence of this factor is possible

the farmer needs to think carefully whether or not he really wants a stabilized general price level. If he is to continue to sell in world markets at world prices, a reduction in his prices, which would be beyond the control of conditions in this country, would, if the United States price level were stabilized, automatically call for an increase in the prices of other items in our economic system. In other words, it would automatically increase his handicap in buying from other members of his own economic society who, without such artificial interference with the price situation, would tend to have their prices lowered along with his. This, of course, points to the necessity both from a policy and from a practical standpoint of an international approach to the problem of price stabilization.

Since the adjustments are being forced with great rapidity it is possible that certain cushioning procedures, not in themselves sound, may be warranted; for example a tariff on a product like flax laid with a view to help to shift land from wheat production, or special concessions in the way of relative contributions to transportation expense, special export rates, etc. The question is, will these be regarded as cushioning devices rather than as crutches for permanent use? So far they never have been so regarded.

Agricultural welfare may rest rather largely on a loosening of regulation and on lower costs rather than on a tightening of the strings of control. The economic structure, as a whole, has in recent years become more and more rigid with the pricing of the majority of products other than farm products and the pricing of labor on a basis which does not permit any ready adjustment to changes in relative supplies of the various factors and products. Thus the farmer, selling for the most part in freely competing exchanges, has been exposed to a greater and greater variability in his prices because of the larger and larger proportion of fixed expenses and the greater and greater pressure on the residual income which goes to him.

Many of these adjustments to low prices will have little direct effect on agricultural production. They will, however, affect significantly the individuals now on farms and also the lending agencies. It is possible, also, that these changes may affect the the situation through the changed nature of the ownership and different methods of farming resulting from this.

# THE BUSINESS CYCLE AND ITS RELATION TO AGRICULTURE[1]

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The recent statistical investigations of Kondratieff, Timoshenko, Pervushin, Petander, Bean, Warren, and Pearson establish at least a very strong presumption that a close interrelation exists between agriculture and business cycles. The precise nature of this interrelation is, however, as yet by no means clear. Though we may assume that it is by now fairly widely accepted that a causal relation does exist, it does not follow that there is agreement as to which way the causal forces run.

Jevons and Moore attempted to establish a definite periodicity in weather cycles, and from these in turn crop cycles, price cycles, and business cycles. According to this view, the business cycle is definitely geared to agriculture just as the wheels of a motor car are geared to the engine. This view has never enjoyed any considerable vogue among economists. The first reaction from the failure of this thesis to obtain a scientific foothold was to assume, as did Professor W. M. Persons, that little or no connection existed between agriculture and business cycles. Moreover, the view gained ground that the movements of the business cycle could not be explained by external forces which *parri passu* controlled and regulated every phase of the cycle. It became generally accepted that the periodicity of the cycle is governed by the internal structure of the modern economic order with its capitalistic technique of production and its money and exchange economy. Just as the periodicity of the pendulum is determined by its internal structure, so also with the industrial order, and as these institutions change in the course of the development of modern capitalism, so also the periodicity of the cycle may change. Thus the length of the cycle was not the same from 1870 to 1900 as from 1900 to 1930.

Three schools of business cycle theories now arose. One held that the cycle was self-generating and as such needed no further explanation than a description of the internal business structure. The second held the view that while the modern economic order was so constituted that it tended, once its equilibrium was disturbed to move in more or less periodic oscillations, yet external

[1] This paper was read at the Twenty-second Annual Meeting of the American Farm Economic Association at Washington, D.C. December 28, 1932.

initiating forces were needed to give the system, every now and then, a kick, so to speak. These external initiating forces having started the cumulative wave-like movement of business going, the internal structure of the mechanism would then tend to perpetuate the movement for a time until finally the oscillating movement came to rest in a new equilibrium. The third held that each cycle tends to become self-limiting and therefore each new period of prosperity must wait upon external initiating forces. In short, while each period of prosperity generates a crisis, and it in turn a depression, yet in its turn a depression cannot give birth to a new revival without the operation of some special outside initiating factor.

Three things in particular were pointed to as initiating factors: inventions, the opening up of new territories, and favorable crops. It is the latter of course, with which we are chiefly concerned in this paper.

With this new theoretical set-up it was now seen that the initiating factors need not themselves run in cycles. The cyclical character of the movements depended not on the existence of cycles in the initiating forces, but on the circumstance that the internal structure of the business mechanism is so constituted that once it is given a kick the movement projects itself in a wave-like fashion. It was then seen that even though agriculture does not itself run in terms of cycles, it may still generate business cycles.

This rather tentative and intermittent connection between agriculture and the business cycle is, it now appears, insufficient to exhaust the interrelationship. Agricultural prices, and to some extent also production, do actually appear to run in cycles. The causal relationship might conceivably run either from agriculture to business, or from business to agriculture. Now it is important to see clearly that even though one assumes that the causal relation runs from agricultural cycles to business cycles, it is still not necessary to believe, as did Jevons and Moore, that the business cycle is geared to the agriculture cycle just as the wheels of a locomotive are geared to the driving piston. We are learning more and more, through the work of Ragnar Frisch, Kondratieff and others, that what has commonly been called *the* business cycle is in reality a component of many cycles, of which the cycle in agriculture may be one. It does not follow, then, that the business cycle is exclusively or even predominantly a resultant of the agricultural cycle. Indeed such a view would not square with the conclusion now almost universally held by business cycle

theorists, namely, that the cycle springs from laws inherent in the inner nature of the modern business mechanism, more especially the capitalistic technique of production and the money economy.

I do not think it is yet possible to arrive at definite conclusions with respect to the precise nature of the relation of agriculture to business cycles. The problem would be fairly simple could it be shown that sporadic oscillations in agriculture now and then generate business cycles without themselves running in cycles. The solution would then lie along the lines suggested by Pigou and Robertson. But if it be true that agricultural production and prices themselves run in cycles, the problem becomes far more complicated. Granted that such cycles do exist, the nature of the causal interrelationship is by no means clear.

It is quite possible, and it seems to me indeed likely, that the causal relation runs both ways. I should, however, like to advance the thesis, admitting at the outset that it is only an hypothesis, that in the main agricultural price cycles, and even to some extent agricultural production cycles, are dominated by the business cycle.

The violent fluctuations in economic life caused by the War have frequently been said to so obscure the normal economic relations that a whole new economics, based on war and post-war conditions, needs to be created. On the contrary there are good grounds for the view that, because of the sweep and magnitude of the movements, these upheavals serve as a magnifying glass helping the economist to see more clearly the normal inner working of the economic system. In no field of research is this more evident than in the fields of monetary and cycle theory, and particularly in the relation of agriculture to business.

In the war and post-war years, the violent fluctuations of business appear largely to have dominated the fortunes of agriculture. This is evident first of all in the prices of agricultural products. The great upward sweep of business from 1916 to 1919 carried agricultural prices well above the curve of industrial prices. The severe business depression of 1921 pushed agricultural prices far below industrial prices. If we follow the movements of the forty-month cycles during the last decade, we discover a high correlation between the ratio of agricultural prices to industrial prices and the business cycle.[2] If we disregard the forty-month cycle and center attention upon the major cycle.

[2] Cf. L. H. Bean, "*Agriculture and the Nation's Business*," JOURNAL OF FARM ECONOMICS, July, 1927, p. 340-345; also V. Timoshenko, *The Rôle of Agricultural Fluctuations in the Business Cycle*. Mich. Bus. Studies 2:(9). June, 1930.

we discover the same relationship. From 1922 to 1929 agricultural prices were rising rapidly in relation to industrial prices. In the great depression of 1930-31 the agricultural prices fell sharply in relation to industrial prices.

This relationship becomes increasingly evident the farther agriculture is removed from a local self-sufficing economy and the more perfectly it becomes articulated with industry in an exchange relation. Agriculture is becoming more and more the football of business. Increasingly, industry is the chief buyer of agricultural products. When industry is prosperous manufacture absorbs an immense amount of agricultural raw materials, and its wage-earners, fully employed at good wages, buy large quantities of food products. When industry is depressed the bottom drops out of the market for farm products. We hear much about the inelasticity of the demand for farm products, but a far more important matter is the violent shifts in the whole demand schedule, rising sharply and falling drastically with the ups and downs of business. Taken in conjunction with the very high degree of constancy which obtains in the volume of agricultural production as a whole, this violent rise and fall in the demand schedule for farm products would produce substantially the same fluctuations in agricultural prices whether the demand were elastic or inelastic. The degree of elasticity of demand is important only when the demand schedule is relatively fixed and production fluctuates violently. It is important as an explanation of the fluctuation in the price of individual products, the production of which may fluctuate sharply according to weather conditions, but it is not of great significance in explaining the cyclical fluctuation in the ratio of agricultural prices to industrial prices, for the total volume of all farm products does not vary greatly from year to year, especially when world output is considered. This is a distinction which, it seems to me, agricultural economists have too much neglected. To repeat, the cyclical variations in agricultural prices are to be explained not by fluctuations in volume of output, which in point of fact is relatively constant, nor by inelasticity of demand for farm products, but by the shift in the demand schedule for farm products as a whole, due to the fluctuations of business, and the consequent changes in the absorptive capacity of industry as a buyer of farm products. Therefore, while I hold Timoshenko's study, for example, to be one of the very best in this field, and while I agree on most points with his analyses, I cannot agree at all with his statement that

the fluctuations of agricultural prices are chiefly dependent upon agricultural production and almost wholly independent of business.[3] On the contrary, I hold that the cyclical fluctuations in the prices of farm products are caused chiefly by the violent shifts in the demand schedules for farm products, taken as a whole, consequent upon the fluctuations in the buying power of industry in the various phases of the business cycle.

Indeed, in so far as cycles of agricultural production exist, I believe that it is at least worth considering whether these cycles are not, to a large extent, the result, rather than the cause, of the business cycle. In general, Timoshenko's study shows that agricultural production since 1870 tends to rise in the depression period and to fall in the period of prosperity. Here again, as I see it, the alternating boom and depression in industry is the moving cause. When industry is prosperous it draws a vast surplus rural population from the country to the city. This process has been going on throughout the last century and is one of the leading characteristics of modern industrialism. When business is depressed, on the other hand, and vast unemployment prevails, there is a partial reversal of the movement. In depression periods agriculture becomes overloaded with workers not only because it must then absorb the whole natural increase in the rural population but also because it must re-absorb some backwash from the cities. Thus urban unemployment creates a surplus of rural workers which finds an outlet in farm employment below the normal margin of production. Urban unemployment exerts, as is well known, a crushing pressure upon rural wage rates, and the lower farm wages fall, the lower will be the intensive margin of cultivation. Moreover, in the depression period, farmers try to offset the lower prices by larger volume.[4] There is thus a double pressure operating during hard times in the direction of a more intensive agricultural production. Prof. Bertil Ohlin of Stockholm University finds, from an analysis of world data, that agricultural production has increased in the present depression. There is likely to be a shift from the worst affected products to the less affected—from grains, for example, to higher quality products. But a decline in certain major fields does not necessarily indicate a decline in the output as a whole.

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[3] Vladimir Timoshenko, *The Rôle of Agricultural Fluctuations in the Business Cycle*, p. 19. Op. Cit.

[4] There is some evidence that the large, capitalistic farms are much more influenced by price factors and profit and loss calculations. This would tend to make them curtail production in the depression period. I am indebted to Mr. O. S. Powell, Minneapolis Federal Reserve Bank for this suggestion.

The increase in output causes a still lower ratio of farm product prices to industrial prices. This presents at least one favorable condition for business revival. Thus the excessive over-production of agricultural products, resulting from the business depression, in turn becomes a causal factor helping to generate, or at least prepare the ground for the next period of prosperity. It is the essence of the self-generating aspect of the cycle that a *result* in its turn becomes a *cause;* that one phase of the cycle born out of the preceding phase in turn assists in the birth of the next phase. Numerous similar examples could be cited outside of the field of agriculture such as the rise and fall of inventories and the rise and fall of bank reserves.

I have argued for the thesis that agriculture is more and more becoming a tail tied to the business kite.[5] Agriculture is becoming increasingly dependent upon business for a market, and as this market becomes more and more linked up with a world economy, agriculture becomes peculiarly affected by international forces. This is notably evident in the post-war period and explains in large part the unprecedented swings in agricultural prices, particularly in the depressions of 1921 and 1930. Never before, with the possible exception of the first Napoleonic war period, have we witnessed such a frightful collapse in farm product prices. The demand schedules of dealers have, in the past decade, shifted violently owing to the increased uncertainties presented by the world situation—for example, the Russian exports, actual or projected tariffs, actual or projected action of governments such as the export debenture proposal, the wheat pools, and the like. Moreover, agriculture has never before confronted such an extreme dislocation of the industrial life of the whole world as has developed in the post-war period. Finally agriculture is itself becoming more capitalistic and therefore more dependent, as Ohlin has pointed out, upon the capital and money markets of the world. Thus agriculture is coming more and more helplessly under the sway of world-wide business cycle forces.

What now of the decade that lies ahead? If my analysis is at all correct, the future of agriculture will depend largely upon the course of world business.

Of primary importance is the future trend of world prices. If this trend should continue downward, which with some 15 nations off the gold standard now appears less certain, we can be

[5] Cf. L. H. Bean, "Effects of Production and the 1930 Business Depression in Farm Income," JOURNAL OF FARM ECONOMICS, Oct., 1931.

sure that business will be adversely affected. We know from Kondratieff's study of the "long waves" that when the trend of prices is downward the rate of industrial productivity is slowed down. This is due not to any slackening in the progress of technique, but rather to the depressing effect caused by the maladjustment in the internal price structure which is characteristic of a falling price trend. And even though the falling price trend is not due to monetary causes, but to technical innovations which reduce costs, disequilibrium would still develop owing first, to the unequal rates of technological progress of different industries and firms, and second, to the institutional frictions which cause prices to lag behind costs. Into this complicated matter, however, I cannot go at the present moment.[6] It is clear, however, that the maladjustment would be still greater, if the falling price situation were aggravated by monetary causes.

The down swing of the long wave, to use Kondratieff's phrase, is preponderantly a period of hard times and excessive unemployment. In consequence, agriculture is depressed on the one hand by the fact that industry is not able to offer a strong market for farm products, and on the other, by the fact that industry is unable to absorb the surplus rural population, with the consequent pressure upon farm subsistence and the impetus toward excessive agricultural production. The ensuing impetus to continual improvements in agricultural technique also tends to intensify the difficulty.

It is not possible for any one to predict even in broad outlines the economic tendencies of the next decade with any assurance. Should a considerable number of the countries, including England and Scandinavia, refuse to go back to the gold standard, the world price level would, of course, be affected. In the event of a general return to the gold standard, the probabilities point toward a downward price trend from a long-run standpoint. The whole international banking situation is, however, subject to a somewhat larger measure of elasticity and control than ever before, and it is by no means impossible that between the end of the present depression and the next major depression we shall run along on a stable price plateau somewhat as we did between the major depressions of 1921 and 1930. In this event we may enjoy a fairly brisk period of business not unlike the oasis of the so-called "fat eighties" set between the hard times of the seventies and the nineties. During this interlude, should it develop, we could expect

[6] See my *Economic Stabilization in an Unbalanced World*, Harcourt, Brace & Co., 1932.

agricultural prices to rise in relation to industrial prices, just as was the case from 1922 to 1929. Should we continue in the down swing of the long wave, however, agriculture will find itself preponderantly in hard times, since, under the circumstances, as we have seen, industry cannot readily absorb either the products of agriculture or the surplus rural population.

Altogether, aside from the probable trend of prices, certain industrial changes are taking place in industry which tend to intensify the instability of industry and thereby of agriculture. The rising standards of living, the surplus of incomes above the bare necessities of life have absorbed a larger proportion of our productive resources in the creation of luxury goods. In the luxury-trade the demand is highly fickle and uncertain. The more prosperous we become, the higher the scale of living, the more rapidly will demand shift from one fad to another and the more unstable business will tend to become. Moreover, while continuing to work within the limits of a price economy subject to violent changes in the value of the monetary unit, the price structure is becoming more rigid. Cartels, trade associations, and trade unions all strive to control individual prices and rates. This development tends to make the internal price structure less flexible and so delays readjustments, once technological changes and cyclical maladjustments have created a condition of disequilibrium.

The leading factor, as I see it, which points toward a larger means of business stability is the slowing down of population growth. This will tend to minimize the importance of the capital-producing industries which lie at the root of the business cycle. But even this favorable factor is of doubtful value to agriculture, particularly if the slowing down of population growth takes place in a period of falling prices and relative stagnation of business. For the slowing down of population growth will inevitably mean an intensification of the difficulties arising from the drift of population from the country to the city. In the last thirty years, while the proportion of the rural population has decreased rapidly, the absolute numbers have remained nearly constant, owing to the growth in population as a whole. When, however, the total population becomes stationary, the rural population will decline not merely relatively but absolutely as well, and this situation is further aggravated by the fact that the decline in the birth rate is preponderantly an urban phenomenon.

Thus, with the increasing dependence of agriculture upon busi-

ness, several factors point to a relatively unfavorable prospect for agriculture. Among these are the probable future trend of the price level, the structural changes in the modern economic order, and the future trend of population growth.

## Discussion by R. M. Green

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Without doubt, Dr. Hansen's second statement namely, that, "The precise nature of this interrelation is, however, as yet by no means clear," can be universally accepted without reservations. On the other hand, Dr. Hansen's paper suggests several avenues of approach that should aid in clarifying the relationships between agricultural prices and other prices.

In the first place, not only is it becoming more generally recognized that "the business cycle is in reality a component of many cycles" but also that the cycle in agriculture is, to an almost equal extent, a component of many cycles. Further clarity will arise as we cover up less with some of our combinations, averages, and index numbers. Part of the present difficulty frequently lies in distinguishing between relationships that really exist and those we have manufactured by our methodology.

In the second place, there is less likelihood of overlooking important relationships if work is at least begun with the assumption that the causal relation runs both ways.

Next, there is yet much to be cleared up in trying to maintain the hypothesis that in the main agricultural price cycles are dominated by the business cycle, which it is already agreed is not one cycle but many.

This almost makes the proposition one of determining whether agricultural price cycles are dominated by many other cycles or whether many other cycles are dominated by agricultural cycles. If cycles of wholesale price indices are compared with cycles in wheat prices, the latter reach extreme lows and highs several months ahead of the former in a large majority of cases. This is especially true if, instead of one wheat price series, a number are considered, and that one observed where local crops, local demand, and other factors tend to make it the most sensitive to changing conditions.

Cash wheat prices are based on the current active future price. The latter, in turn, is, day by day and over short periods throughout the life of a future, affected by the volume of trading, the open interest in futures, and by the relationship existing between volume of trading and open interest. The latter is indicative of whether volume of trading is for the purpose of taking an additional "stand" in the market or for the purpose of "evening up" accounts already open. The very mechanism itself leads to alternate up and down movements in prices of various size and duration. This is an example of a part of "the inner nature of the modern business mechanism" of which Dr. Hansen speaks. It exists in a highly organized trade where a foodstuff, once of great importance, is involved. Partly because of its continued, though lessened, importance, partly because of its traditional importance, and partly because of its world-wide distribution, wheat readily attracts a speculative demand in addition to the demand based on utility, as it is generally understood, to a greater extent than many products.

Utility analysis in economics has generally minimized the part played by speculative demand, insisting that ultimately it must rest on demand based upon utility. This thesis is not so easy to reconcile with the institutional practice of using the

speculatively determined current active future price as the basis of cash wheat prices, the latter, according to utility analysis, presumably based on utility. If a more liberal allowance is made for the part played by speculation, then Dr. Hansen's statement as to the importance of the shift in demand schedule is not so radically at variance with Timoshenko's thesis that fluctuations in agricultural prices are chiefly dependent upon agricultural production. At least the shift in demand schedule could conceivably be influenced by *prospective* production.

It seems true, as Dr. Hansen points out, that agriculture is much more dependent upon business than it once was. It is not inconceivable, however, that during coming years farmers, having of necessity to get along with less money, will again become more nearly self-sufficing. On small farms a return will be made to horses and mules to consume feed not readily marketable for cash. Land values will be down where the new purchaser will be less burdened with debt. Old debts will be scaled down by default and foreclosure. With such a process going on and a return to the land, as Dr. Hansen suggests, there may come a time when the farm as a market for other products will assume at least a part of the importance that has been held by industry as a market for farm products. To the reviewer, the outlook for agriculture is hardly as dark as Dr. Hansen makes it.

A certain degree of independence, though of course not complete, in the case of individual commodity prices, as in the case of wheat, would still make for a general price cycle, at times, by the mere coincidence of similar movements of prices of a number of commodities. This would occur as a greater number of commodities reached the so-called saturation point and began to exhibit price cycles and because institutional mechanism, crop variations, and the like limit certain up and down price movements to one, two, three, or four years with great frequency.

# CERTAIN ASPECTS OF THE OUTLOOK FOR AMERICAN AGRICULTURE DURING THE NEXT TEN YEARS[1]

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The man who at present can accurately draw the picture of American agriculture as it will be at the end of the next ten years is entitled to the title of Master Prophet. Such a man, if one exists, undoubtedly will have to wait until the hereafter for any reward for such a prophecy and in the meantime he will probably be hailed as champion of the fools. The writer has no aspiration for either honor, much as might be inferred from the title of this paper. On the contrary, the discussion will be confined to a consideration of some of the existing economic facts, forces, and trends affecting American agriculture and, in the light of past experience, some of their probable influences on the future pattern of American agriculture.

It is safe to predict that American agriculture ten years from now will have changed in response to these economic forces but the extent of the change is far less easily predictable. It will depend upon the extent to which men, by their actions, speed or retard the movement.

The more obvious characteristics of the present depression are familiar to all. Everyone knows of the low level of prices, the unemployment of many workers, the burden of debts incurred in times of higher price levels, the difficulties resulting from taxes that are taking an unduly large share of the incomes of many people, and other phenomena of the depression as it affects the daily lives of all. But back of all these obvious things are more fundamental factors.

Among these more fundamental factors are changed international relations. Nation after nation is withdrawing to an increasing degree within its own borders. The pressure of international debts, shortage of gold excepting in the United States and France, and fear of another war with serious consequences to the nation that lacks a domestic supply of the essentials of life and for the conduct of war is encouraging the nations of the world to adopt nationalism to a degree that makes the present resemble the Mercantilistic period. Every nation is a ready sel-

[1] This paper was read at the Twenty-second Annual Meeting of the American Farm Economic Association, Washington, D.C., December 28, 1931.

ler but a relutant buyer. Obstacles to buying in foreign markets are becoming more numerous and more serious. Tariffs on imported goods, bounties and subsidies for home production, restrictions on, or prohibitions of, the use of imported raw materials are the rule throughout the world. In Europe, Germany, France, Italy, Spain, and Greece have adopted tariff duties and import restrictions that materially reduce their imports of raw materials, including farm products; and England, after a free trade policy for more than eighty years, is seriously considering the enactment of a protective tariff. These policies are designed to discourage purchases in foreign markets and to encourage the production of the needed products within the borders of each country. As a result of these policies that encourage nationalism, the world market is full of sellers but there is a dearth of buyers.

Underlying this situation is the universal problem of low prices and unstable monetary systems. Low prices are prevalent in every country. Of the major countries of the world, only France and the United States remain on the gold standard with free movement of gold. The consequent instability of price levels has intensified the lack of confidence resulting from the rapid and drastic decline in prices since August, 1929. This has further stifled both domestic and international trade.

These are a few of the important factors in the world situation as American agriculture faces the future. From the domestic standpoint the picture is not materially different. Prices of most farm products are at record low levels; debts are burdensome, resulting in many bankruptcies and foreclosures; taxes and other fixed expenditures are paid with difficulty, if at all; agriculture is expanded beyond the immediate needs of available markets; bank credit has become even more concentrated in the larger cities; and standards of living of rural people have been reduced of necessity.

With this partial picture of the present agricultural situation as a background, the problem of this paper is to indicate the probable lines of progress that will be followed in solving these problems and restoring agricultural prosperity during the next ten years.

### *American Agriculture and International Trade*

An inventory of America's agricultural plant in relation to markets at once reveals the fact that the plant is larger than

is needed. Since agriculture tends to run at full capacity at all times, the expedient used by factories of operating on a part time basis cannot be used. A reduction in the size of the plant is required. The extent to which the agricultural plant needs to be reduced is conditioned by the future of America's international trade in farm products. The tendency throughout the rest of the world for each country to become agriculturally as nearly self sufficing as possible indicates that the proportion of American agricultural production exported will continue low and probably will be further reduced. At present, approximately 10 per cent of the cropped land of the United States, or thirty million acres, is used to produce farm products that enter into export trade. A conservative estimate of further reduction would seem to be one-half the present area or approximately fifteen million acres. At least such an estimate will suffice for the purposes of this discussion.

If this nationalistic tendency continues, the land that must be released from the production of products for export includes some of the best agricultural land of the United States. It is doubtful if much of this land can be used to produce agricultural products that are now imported. Most of the agricultural imports are such that they could be produced in this country only with difficulty and at great expense. Consequently, it seems probable that much of this land will be transferred to the production of farm products needed for domestic production. This involves shifts or adjustments in agriculture beginning in many cases with the best land and extending to the uses of all grades of land. The whole problem of land utilization is involved.

### *Agricultural Adjustments*

An effective and comprehensive program of land utilization must begin and deal chiefly with the use of the super-marginal lands that are now within the best agricultural sections of the country. It is these lands that exert the greatest influence in creating surpluses. One acre of highly productive land may cause more distress than ten acres of marginal land if this more highly productive land is not used wisely in consideration of the needs for various agricultural products.

Attention is frequently centered on the marginal lands as causes of agricultural surpluses. The problem of these lands is emphasized out of all proportion to its relative importance. Most of these lands contribute relatively little to the surplus problem

although they do contribute materially to the social and political problems of the day because the people living on them want roads, schools, churches, local governments, and other social services that are beyond the ability of the community to support adequately. From the social point of view these marginal lands should be gotton out of farms and devoted to other less intensive uses but the net effect of this will do little toward solving the present problems of American agriculture unless, at the same time, there is a constructive program to secure the use of all grades of land in accordance with the needs for the products of land.

Such a program of land utilization will be concerned with the organization and operation of every farm. It involves the reorganization of many farms, the adjustment of production to the changed market needs and for much land it will involve less intensive use. To carry it out with the least hardship and suffering requires research and education in the uses of land, the organization and operation of farms, the outlook for agriculture in all of its phases and careful consideration of regional adaptation and competition. The research needed exceeds that in existence at present and it should be on the basis of the agricultural regions of the country and should not be fettered by state lines as is characteristic of most such research at present. The problems of entire agricultural regions, such as the corn belt, the cotton belt, and the hard winter wheat belt, should be studied and not just such portions of these regions as happen to fall within the boundaries of a particular state.

The results of such research should be carried to those who can make use of it by means of education through the extension service, classroom instruction, and the numerous other ways available. Careful interpretation should be made in the light of the results of well-planned research on the outlook for agriculture and, if effective, the statements must look to the future and give the best judgments of the skilled researchers concerning the importance and consequence of the facts revealed. The results of such research will be nullified if their interpretation is tempered by its probable effect on the next election rather than by its possible contribution to American agricultural progress and prosperity.

In the necessary readjustment of agriculture, all regions will not fare equally. New improvements affecting agricultural production have already resulted in the migration of the wheat and

cotton belts to the westward and similar forces are resulting in the westward shift of corn and hog production. Such shifts make readjustments necessary and further emphasize the need for careful research to furnish intelligent guidance in making the needed changes.

In the shift toward a less intensive agriculture for the United States, it does not follow that all grades of land will be used less intensively. For some lands there may be little change. For other lands there may be drastic change. Careful study of the needs for the potential production from each grade of land in each agricultural region must be made. For reasons which are sufficiently obvious to the informed student of the situation as not to require elaboration here, any program calling for equal vertical reduction of production on all farms producing a product is doomed to failure. The problem is not so simple of solution.

Data made available by the Census indicate certain definite trends in the size of farms which are a consequence of these adjustments. These trends may be expected to continue. The small farms of less than fifty acres are increasing in number in many states. These smaller farms tend to be concentrated in the vicinity of towns and cities as is to be expected. Data available at present do not clearly indicate the character of these small farms but it is probable that they are of two general types. One type is the small intensive farm producing perishables for local market needs. The other is the suburban home, on a partially self-sufficing basis, of an urban worker. The latter type of so-called farm is developing as a consequence of the automobile and other developments in transportation, the extensions of electric power, the desire to insure against the hazards of unemployment by producing a part of the family living, and the search for desirable conditions for the rearing of a family. This type of farm seems to be increasing and needs more careful study, both from the standpoint of the people living on these farms and from the standpoint of their probable effect on the demand for products from farms requiring the fulltime employment of the operators.

The second significant change in the size of farms is an increase in the number of farms which may be termed the large-sized family farms. The number of family farms of intermediate size is decreasing and also the number of exceptionally large farms. This movement toward more large family farms is a result of the more economical operation of the larger unit with newer methods and mechanical power. The net result of these

movements will be fewer farms and more economical production. This movement proceeds at varying rates in different sections of the country as a result of differences in the type of farming, the age of the region, the development of sentimental attachment to the farm, and the rapidity of land transfer as a result of voluntary sales, forced sales, foreclosures and the settlement of estates.

It is probable that this movement toward larger farms of the more general types will be speeded up within the next few years. Farm foreclosures and bankruptcies resulting from adverse conditions since 1929 will probably be more numerous next year than in 1931 since they tend to lag behind the movement of prices. Foreclosed lands are usually not on the market for one to two years after foreclosure is started. Consequently, farms on which foreclosure is necessary will be on the market in larger numbers in a year or two, or more, from now. These farms will offer opportunities to increase the size of other farms either by purchase or lease. It also follows that the low point in land prices has not yet been reached but will probably be reached when the maximum of these distressed lands is forced on the market.

### *Effects of Price Levels*

Of more immediate concern than the problems previously discussed is the question of the level of prices. A low level of prices would not be a serious matter if debts and other fixed obligations incurred in times of higher prices, could be ignored. But such obligations cannot be ignored and they constitute one of the most serious difficulties in the present situation. These debts include international obligations, both governmental and private, the obligations of the federal, state and local governments, and the debts of private citizens and business enterprises. These debts are being met with difficulty and if present price levels continue, it seems probable that many of them will either be defaulted or repudiated.

Recent developments in the international situation show the difficulty of collecting governmental debts from a nation whose people keenly resent the debt and the conditions that brought it into existence. Moratoria may postpone the day of final disposal of the question but ultimately, repudiation or cancellation of much of the debt by means of progressive writing down of the principal, or some other camouflage, seems inevitable. The

present intense tariff war among nations is adding to the difficulty of payment and hastening the day of final settlement.

### *Taxation and Agriculture*

The debts of the United States government, of state and local governments and of the majority of private citizens and business enterprises must be met in full if economic stability is to be maintained and economic chaos avoided. Governmental debts and other obligations now outstanding in this country insure that taxes will remain high for many years to come. Many protests of high taxes have been registered but the possibility of relief through reduced taxes is not great. Many taxpayers' meetings have been held and suggestions for reduced expenditures have been made but it is significant that if all of these suggestions were put into effect, general property taxes could be reduced by not more than 5 to 10 per cent as a maximum, and in many cases by not more than 1 to 2 per cent. Many of these protesting taxpayers have incurred more expense in attending the meetings than the reduction in their annual property tax would amount to if all the suggestions offered were adopted.

Local taxes should be reduced wherever possible but this means of securing relief does not offer substantial promise of material improvement. From the national standpoint, higher rates of taxation seem unavoidable if the government is to continue to render services as demanded at present.

However, it is not to be assumed that some relief cannot be secured through adjustment of taxation. Revisions of taxation systems that result in more equitable distribution of the tax burden are highly desirable and will be of material aid. The slavish adherence to the general property tax as almost a sole source of revenue in many states has resulted in excessive tax burdens on farm real estate. A more progressive system of taxation would do much to relieve agricultural distress by shifting a part of the tax burden to those who are better able to pay taxes but who now escape taxation either wholly or in part.

Taxation systems may well be used as a means of encouraging desirable land utilization. Classification of land according to use and varying the amount of the tax directly with the intensity of the use of the land would discourage the bringing into production of new lands that are not needed and encourage the use of many acres of land for less intensive purposes. Such a pro-

gram, if wisely administered by efficient and competent local assessors could encourage programs of soil improvement that would further aid in solving present agricultural problems.

### *Changing Price Levels*

To meet these taxes which seem destined to remain high because of governmental debts, and to meet the principal and interest payments of existing debts, governmental and private, a higher price level than now prevails seems imperative. The other alternative is that many debts will have to be written off or scaled down. A return to the level of prices prevailing over the period from 1926 to 1928 seems conservative and desirable and would materially relieve the present pressure of debts and other fixed obligations. Furthermore, greater stability in price levels is highly desirable.

The methods to be used in securing such an advance in prices are beyond the scope of this paper but certain suggestions may well be mentioned. The exercise of the powers of the Federal Reserve system to the fullest possible extent in affecting price levels has been advocated and is worthy of trial. Variation of the gold content of the dollar along the lines of the stabilized dollar has been suggested. In this connection, the present status of the gold standard throughout the world is significant. France and the United States are the only major countries still on the gold standard with free movement of gold. Much of the rest of the world is, of necessity, off the gold standard and forced to experiment with paper currencies that for the time being at least are not redeemable in gold. It would be foolish to predict the outcome of these involuntary experiments with managed paper currencies but past experience indicates that, if these currencies are ultimately stabilized on a gold basis, the gold content of the monetary units will be reduced in many cases. This tends to have the effect of raising prices and writing down debts in proportion to the reduction in the gold content of the monetary units.

If this occurs and price levels remain low in the United States, debtors in this country will not share in the relief from debt that will come to other nations. Debts of other nations to the United States, both on public and private account, the interest and principal of which are payable in dollars, will become more burdensome because of the relatively high purchasing power of the dollar. This will tend to encourage exports to this country to se-

cure dollar exchange for the payment of these obligations but exports from this country will reduce available dollar exchange and undoubtedly will meet increased resistance. If such monetary changes occur they will further hasten the reduction of exports of farm products from the United States and make drastic agricultural readjustment still more urgently necessary.

### *Some Suggested Remedies*

During recent years, it has been frequently advocated that the general level of prices of agricultural products should be increased by means of the so-called "equalization fee" or by an export debenture plan. The writer would readily subscribe to either or both of these plans if he had any hope of their accomplishing their purposes. Both plans contemplate selling agricultural export surpluses in world markets at world determined prices while the portion of the product needed for domestic use would be sold at higher prices behind the tariff wall. Many objections to such plans have been advanced but one difficulty seems particularly pertinent in connection with the present discussion. Sale of products in foreign markets under the conditions prescribed by these plans is defined as dumping in most countries and countervailing tariff duties may be used to prevent it. The proponents of the plans contend that it is not dumping but it must be remembered that the privilege of defining dumping is with the country in which it is proposed that the products be purchased and not with the country that wishes to sell the product. In consideration of past attitudes on similar practices, of the present tendency for free trade to disappear from the face of the earth and for each nation to safeguard its own industries by means of protective tariffs, more optimism than the writer possesses is required to assume that either the equalization fee or the export debenture plan would have a chance to accomplish its purpose. It may be contended that the Orient would present a market for these surplus products but the needed purchasing power seems lacking in those countries.

### *Summary and Conclusions*

These aspects of the present situation of American agriculture, and the probable trend of the factors enumerated, during the coming ten years indicate that production of farm products for export will decrease. This will release upwards of fifteen million

acres, more or less, of the better grades of land and make it available for the production of farm products for domestic uses. Readjustment of much of the agriculture of the nation will be necessary. Little will be accomplished in solving the resultant production problems by removing the so-called marginal lands from agricultural uses since these lands now contribute comparatively little toward the total supply of farm products. However, the social and political problems involved will justify action to remove these lands from agricultural uses. From an agricultural standpoint, less intensive use of much of the better land seems necessary with increased attention to the maintenance of soil fertility and other practices that will result in lower costs per unit of product. It is doubtful if much land will go entirely out of use. It will merely revert to more extensive uses.

The intense competition among the various agricultural regions of the United States will result in increased need for information concerning desirable agricultural adjustments. Research on the agricultural outlook and research in regional adjustments and competition will be more urgently needed even than at present. The results of such research must be available if these shifts are to be made with a minimum of distress. Educational work on the agricultural outlook and desirable adjustments will be urgently needed and must be interpreted in definite and specific forecasts made by the research workers. Mere recounting of present and past history will not suffice as outlook statements.

In the process of readjusting to the changed conditions, all regions will not be affected equally. For some there will be material change, for others but little. Any program calling for a flat percentage reduction in the production of a crop for all farms producing that crop is doomed to failure because of the varying influence of these changes on different regions and on the different farms within each region.

The present trend toward more part time farms as suburban homes for urban workers will continue and this movement needs careful study and appraisal. The trend toward an increase in the number of larger farms of the family size will continue with fewer of the smaller farms of family size and fewer of the exceptionally large farms. This will result in lower costs of production by making possible efficient use of power, equipment, and labor on family operated farms. This movement toward larger family farms will be accelerated in the next two or three years as

foreclosures become more numerous and distressed lands come into the market for resale or lease.

The immediate crux of the situation is the low level of prices and the pressure of debts and other fixed obligations. Taxes can be reduced but little and the total of federal, state, and local taxes may be maintained or even increased if foreign governmental debts are revised downward. Payments on these debts reduce the funds that must be raised by taxation to meet the obligations of the United States and if these payments from foreign governments are reduced, United States government revenues must be correspondingly increased from other sources. To meet debts, taxes, and other fixed expenditures, a level of prices corresponding to that prevailing from 1926 to 1928 seems desirable. A continuance of present price levels will not only make debt repayment impossible in many cases but, as other nations adjust to their changed monetary conditions, may further handicap the United States in international trade.

In accomplishing this readjustment of agriculture to changed conditions, the agricultural economist should play an important part. The situation calls for courage, vision and clear thinking. Problems must be anticipated insofar as possible. The educational foundation for a program of readjustment of farming systems, of land utilization, of taxation systems, of price levels, and of the many other factors in the situation must be laid well in advance of the time when definite action is essential. If the educational work is well done, people will be prepared for the needed change and opposition to it will be materially reduced.

The agricultural economist who makes his influence felt in this readjustment process must be fearless but not foolhardy. It is well to remember that major readjustments of the kinds required by the present situation are not accomplished in a day. Time is required and such momentous problems properly should have the careful and matured consideration of all concerned before changes are made. Under such conditions, those who are easily discouraged have no place among agricultural economists.

The progress made toward readjustment during the next ten years will depend upon the courage, wisdom, and aggressiveness with which the problems discussed and others pertinent to the situation are met. It is well to remember that the present depression is man made. This is true of all depressions and other phases of the rise and fall of prosperity. Neither the blame nor the praise is due the physical universe. Nothing is more constant

than nature. The hills, valleys, rivers, soils, sunshine, rain, and so on in nature are much the same year after year, generation after generation, and century after century. It is the relations of men that change and at present these relations are distinctly out of joint. The remedy lies in an intelligent understanding of these relations and carefully and wisely chosen actions to remedy their maladjustments. In truth, the depression is man made and the return to prosperity will be the collective creation of men. The urgent need for speedy readjustment and recovery from the depression is a challenge to the agricultural economist to give his best thought to the problems of the present situation and through clear thinking and careful planning aid in initiating well thought out and comprehensive programs for readjustment and improvement. The extent to which this is done by agricultural economists and educational leaders in other related fields will answer the question of how much progress will be made in relieving the depression during the next ten years.

## Discussion by Lawrence Myers

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In the latter part of his paper, Dr. Grimes urges agricultural economists to be courageous in dealing with the problems that confront agriculture and in recommending programs of action for bringing relief. Dr. Grimes took a courageous attitude in preparing his paper, and as a result we know exactly where he stands on the issues he discussed. Clearly he attempted so far as possible to confine his remarks to agriculture, leaving to other speakers the tasks of dealing with the many related problems. Although a partial treatment is inescapable in dealing with so large a topic in a short period of time, it usually results in the discussions of developments on one phase of a problem, as the supply of agricultural products, getting out of line with the likely developments in other phases, as demand. The difficulty was not entirely avoided in this case, but one of the most interesting features of the paper is the number of conclusions and forecasts on related problems that can be detected from the conclusions about the problems discussed.

Dr. Grimes concludes that the American agricultural plant is larger than is needed. In view of the controversies on this point it is interesting to note that his conclusion is not based on a comparison of present production with past production, but rather of present production with a lowered domestic demand, resulting from the domestic depression, and restricted foreign outlets resulting from foreign depressions, debts, trade barriers, and an accentuated nationalism that gives rise to "willing sellers, but reluctant buyers." If looked at from a national point of view rather than a purely agricultural point of view some will not be willing to accept the conclusion that a loss of export markets requires a reduction of agricultural production by an amount equal to half the output of the acreage now devoted to producing for export. The conclusion carries with it the assumption that demand conditions are not likely to improve materially in the near future. If conditions are to remain such

that demand continues low then it is pertinent to ask whether our laborers are likely to find more dependable and profitable employment in industries. Regardless of the extent to which we are willing to follow the recommendation, it is clear that for the purposes of the discussion, agricultural production should be considered in light of the present outlets rather than in light of previous production levels.

In determining where reduction is to take place, Dr. Grimes very pointedly discards the program for flat acreage reduction. Among agricultural economists this decision is quite uniformly accepted, but it is worth repeating in the hopes that it may reach those outside the ranks of the profession. The observation that the elimination of the so-called marginal lands will not accomplish a material reduction in our agricultural output strikes closer home. The ready reference to our least productive lands has saved many from attempting to think through the problem of actually obtaining a reduction in output. To get a reduction of output on our better lands, is nevertheless, probably more difficult than the speaker indicated. To some extent agricultural depression encourages more, rather than less, intensive production, particularly when such change does not increase the cash outlay. The depression in industry has also started a return flow of labor from the city to the farm. In fact some, thinking more of a supply of home-grown food than of cash returns or schools and similar advantages, have gone onto the marginal lands. To the extent that the adoption of less intensive methods is coupled with a reduction in cash outlay, there is reason to anticipate a reduction in output on our better lands, but where this is not the case we may well question the prospect for marked success in this direction.

Methods by which our agricultural output can be reduced and the advisability for such action by the individual farmer, the speaker believes, will be shown by further local research to be made a part of our regional outlook program. Certainly the elaboration of the outlook activities as suggested, to the point where more specific local programs can be formulated, is an end that is being worked toward. Over a period of ten years such a program can be of very definite significance. We should keep in mind, however, that the outlook program with the related research, teaching, and extension activities, does not constitute a method of coping with emergencies immediately. Attempts to make it do so are likely to take the form of efforts to merge it with such programs as the one of flat acreage reduction which the speaker discarded. At least that has been the experience to date.

Dr. Grimes also suggested the use of taxation as a method of obtaining desirable land utilization. Some progress has been made in adjusting taxation to the requirements of forest developments, but in dealing with the more productive agricultural lands the problem becomes more difficult. Specifically, I take it, local tax boards must be willing to discourage certain developments by levying excessive taxes, and to encourage other developments by taxing them lightly. In view of the booster attitude taken in most localities, I question whether such programs will be pursued very vigorously except in the case of the poorer agricultural lands.

The arguments that inflation, even at the expense of a devaluation of the dollar, is needed in order to return to the 1926-28 price level, and that unless devaluation in the dollar occurs other countries that have depreciated their currencies will exert more pressure on the United States markets and require a still greater agricultural readjustment in this country, need more careful statement. To attain both results the dollar would need to be depreciated sufficiently to offset the depreciation of foreign monies and in addition, perhaps with further devaluation, there would need to be sufficient inflation to return to the desired price level. Frankly, is there much likelihood of the United States willingly depreciating its currency in order to inflate prices or offset

declines in foreign exchange? I think we may also ask whether inflation, while exchange rates are maintained, has much prospect of success for the time being. One may question the advisability of neglecting the influence of the depression on foreign competition. Finally there is need of a balancing statement, for offhand there seems to be a tendency to seek complete relief through each of three directions: the readjustment of agricultural production; inflation of our currency and depreciation of exchange; and the ending of the depression. Apparently Dr. Grimes does not feel that action in either or all of these directions will be sufficiently effective to bring complete relief for lastly he turns to the equalization fee and the export debenture and concludes that neither of those plans offer a solution.

One of the most valuable features of Dr. Grimes' treatment has been his willingness to place himself on record concerning the future. Obviously it is easier to adopt the attitude of the "timid soul" and refrain from making statements that subsequent events may prove to be wrong. But with the problems of agriculture so pressing, it is no time to delay the drawing of our best conclusions about the future to serve as a basis for a program, be it one of action or inaction.

# ADJUSTMENTS IN AGRICULTURAL PRODUCTION UNDER THE ASSUMPTION OF A LOWER GENERAL PRICE LEVEL AND REDUCED FOREIGN DEMAND FOR AGRICULTURAL PRODUCTS DURING THE NEXT TEN YEARS

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It should be understood that whatever is said in this paper represents only a development from the hypothesis stated in the title and that the writer accepts no responsibility for the validity of the hypothesis itself. The establishment of its correctness or incorrectness is a separate topic and although there has been a good deal of evidence given in support of the truth of the statement, the fact has not been so incontrovertibly proved as to leave no room for skepticism.

It is necessary also to arrive at some assumption regarding the relationship of the level of agricultural prices to prices of non-agricultural commodities. If agricultural prices decline less than the level of non-agricultural commodity prices the purchasing power of farm products would increase and the effects of a reduced price level would be less harmful to agriculture than if agricultural prices declined more rapidly than non-agricultural prices. If the price level of two groups decline at the same rate, agriculture would not be injured or benefitted in so far as changes in purchasing power were concerned. If the present situation were to continue for ten years, agriculture would suffer severely. Let us assume, therefore, that the prices of agricultural products and those of the things farmers buy move together until the purchasing power of agricultural products is 100 and then decline at the same rate for the next decade. This assumption is perhaps more optimistic than is justified. There is no basis for believing that the discrepancy in purchasing power of agricultural products will be eliminated soon or that non-agricultural prices will decline as rapidly as agricultural prices during a period of declining prices. The reverse might be closer to the truth. However, as the title presupposes a gloomy outlook for the next decade, perhaps this discussion should show the situation in its best possible light rather than in its worst.

Before passing to some specific aspects of the prospective situation brief consideration should be given to the question of

the general effect upon production of a long continued price decline. If prices of things farmers buy decline as rapidly as farm-product prices, variable costs will be reduced as rapidly as prices and hence there would be no immediate tendency toward reduced production in so far as variable costs are a factor. However, a substantial part of farmers' expenses are out of pocket payments for interest and taxes. These will be reduced slowly or not at all, and with lower per unit prices for products many farmers must sell more units to meet these fixed charges. For many farmers, therefore, lower prices are a spur toward larger production rather than the reverse, particularly for a short period. Presently, however, the remainder, after all out of pocket expenses are paid, becomes so small that many decide that it is no longer worth their while to continue producing for the small return and that they can do better in other occupations. These men then sell their farms or rent them or let them revert to the mortgage holders or give up their leases, or if they are not quick at arriving at decisions may have one made for them by foreclosure action. If their land is so unproductive or so poorly located as to make it unprofitable to cultivate under the low prices for products the owner may find it impossible to dispose of it. Many such farms revert for non-payment of taxes and pass out of cultivation. If the farm is rented and the operator gives up the lease the land may pass out of cultivation for similar reasons. If the land reverts to a mortgage holder the latter may operate it himself, rent it, or sell it again. If it is sold it will probably carry a smaller valuation than before, and a smaller mortgage, thus requiring the new owner to pay less interest annually. If the land is very poor the mortgage holder may lose his investment and allow the land to pass out of cultivation. There are many possible variations of the above "order of land disutilization," all of which lead to some curtailment of cultivated acreage, but very slowly, and as the acreage thus curtailed is the least productive, a long time must elapse before enough of this kind of land is abandoned to make itself felt through significant reduction of production. This approach to the problem of probable readjustments resulting from a continued price decline and decrease in foreign demand promises to be fruitful, but limitation of space prevents its being followed to its conclusion. Instead, one particular aspect of this larger problem will be given consideration.

Much is heard just now, and even more was heard two summers ago, about the importance of reducing agriculture to a do-

mestic basis. Only by so doing could farmers insulate themselves from the withering heat of foreign competition. The protective tariff on agricultural products was of course the competition-proof insulator. Once we withdrew from world competition and had guaranteed the American Market for the American Farmer everyone would be happy and everyone would rapidly become wealthy by "taking in each other's washings."

"Reducing agriculture to a domestic basis" is a glib slogan of the kind we are so accustomed to use as a substitute for thinking. It sounds profound until one begins to inquire what might be its meaning. Behind the slogan is the assumption that industries producing only sufficient for domestic requirements are necessarily prosperous, or if not, can be made so by enactment of sufficient tariff protection. But many industries now producing enough or less than enough for domestic requirements are not prosperous; many highly protected industries are also unprosperous. Agricultural products could still be produced unprofitably after we had "shrunk agriculture to a domestic basis." The plan also assumes that the existence of an "exportable surplus" is necessarily something to be avoided. It likewise assumes that it would be impossible to over-produce so long as no products are exported. These assumptions, of course, are fallacious. It is quite possible that the elimination of exportation of certain products would result in a smaller total income accruing to agriculture. Only if a larger income occurs could elimination of agricultural exports be recommended.

This does not mean that during the next decade there would be no reduction of export crops. It is probable that there would be reduction in the case of those products where acreage could be shifted to other production giving promise of yielding more than in the present use. With prospective lower prices, while many costs remain high, there would be a tendency toward a greater self-sufficiency in agriculture in many cases. This means a shifting from commercial crops to feed crops for livestock and to food crops for the home.

Reduction in acreage of export crops means a shifting of production, an abandonment of crop acreage, or both. If prices are maintained on a very low level farmers will, of course, attempt to shift production to enterprises giving promise of larger returns. Land will be abandoned only as a last resort. Shifting will not occur first in the more recent areas brought into cultivation. These areas usually have few alternatives and production in the

present use is about the only alternative to abandonment. It is significant that these newer areas are among the lowest cost areas due to their adaptability to improved methods of production. Already they have demonstrated their competitive strength in their struggle with older producing regions. Some of the older regions often produce under high costs and as they have more alternatives they will be the first to shift to other types of production.

As shifts in production necessarily must occur where there are alternatives some further examination of such shifts must be made. In the South, for example, if cotton acreage is to be reduced to a point where only domestic requirements will be met, the bulk of shifting will probably occur in the older cotton states. The closest alternatives to cotton in these states are probably corn and livestock. Thus, the South would become more self-sufficient with respect to feed crops, livestock and livestock products than it now is. Such a shift would be felt quickly in the corn belt. Thus far there have been almost no export surpluses of the typical corn belt products with the exception of pork products, principally lard. There has been no surplus of beef cattle. Feed crops have not been excessive. Poultry and eggs have not been exported and dairy products have not often entered export trade. If the southern domestic markets were taken from the corn belt, there would be an immediate surplus of many of these products that would be available for export. As exports are supposed to be dispensed with, production of feed crops and livestock and livestock products would have to be reduced. Doubtless some of this reduction would occur in the corn belt but as the corn belt has unquestioned advantage in production tremendous competitive pressure would be placed on areas producing the products outside the corn belt proper—around the edges and in the South. Once this competitive force is set into operation it may appear that what seemed to be an alternative to those areas shifting away from cotton and wheat was really not an alternative, and that abandonment of export crops would mean not a shifting to an alternative production with comparatively little loss of income but a real and important loss in standards of living for whole areas, states, and regions.

If no outright attempt is made to reduce agricultural production to a domestic basis, and in view of the obstacles in the way it seems an unwise and impractical objective, pressure of decreasing prices and slackening foreign demand will reduce pro-

duction of export products and of products close to the export margin as rapidly as, and to the degree permitted, by alternative opportunities. In some cases these alternatives will be other kinds of agricultural production, in others withdrawal of land from crop or pasture uses and dedicating it to forest and recreational use. It is always assumed that the shifting that will occur will be of acreage from one crop to another or from one type of use to another. It is assumed that variations in land are the only means by which adjustments may be made. This assumption ignores the fact that labor and capital as well as land are required in production. Necessary readjustments may be made by varying these factors as well as land. It is, of course, assumed that reduction in acreage will involve some reduction in agricultural personnel but it is conceivable that readjustment of personnel may be the major type of readjustment. Production may be cut by reducing the number of workers as well as by reducing the number of acres. Or it might even be possible not to cut production at all. Should opportunities for workers in the cities be very good there might be a large movement of people from farming to urban occupations, thus enabling those remaining on the farms to maintain an income comparable with urban incomes. In order to secure this income the fewer farmers might produce as much as is produced now either on a somewhat reduced total acreage by use of improved technique or without acreage reduction by applying improved large scale farming methods.

Lower prices might cut production by discouraging capital investment. If capital returns are unsatisfactory in farming as compared with urban investments, capital will flow out of agriculture and production will be restricted. Withdrawal of capital will result in abandonment of acreage in some areas and forcing people off the land. General capital withdrawal will mean reversion to more primitive and less efficient methods of production, with increased emphasis upon self-sufficiency.

Adjustments in production will be made by reapportionment of all of the productive factors. The adjustment will not be effected solely by shifts in land use. Shifts in labor and capital in some areas and in some types of production will be more important than land readjustments. The situation may be roughly compared to increasing steam pressure in a boiler. It has been assumed that adjustment in land use was the only safety valve by which pressure could be kept below the danger point. There are two other "safety valves" regulating the pressure and the

part these will play in any prolonged period of price depression must not be underestimated.

The most ardent advocates of acreage reduction, while realizing that such a plan would mean reduction in farm population, have not been publicly concerned with facing the problems, social and economic, that such displacement of personnel would involve. They have been greatly concerned with ways and means by which land could be got out of cultivation and production reduced. They should be as greatly interested in ways and means by which the working force in agriculture may be reduced with as little injury to the people involved as possible. Obviously the one plan cannot be put into effect without the other and the two should be considered together. Of course, public recognition of the fact that reduction in production involves reduction and displacement of personnel would not be popular. There would be tremendous public disapproval of any policy that set about displacing large numbers of people. The public can look dispassionately upon displacement of land. Land is inanimate. Displacement of people is another thing. Yet the one problem cannot be faced without facing the other and of the two the personnel problem is by far the more difficult to solve. If production is to be reduced by any given percentage—5, 10, or 20 per cent—farm population must be reduced by a similar amount, perhaps more, as the reduction in production will take place in those areas where labor efficiency is not of the highest, and in order to effect any given reduction in production probably a larger than proportionate number of people must be removed from the agricultural industry. If the nation embarks upon a production reduction program it must embark upon a program for shifting a substantial share of the farm population to other pursuits. The personnel program would surely involve vocational education for urban occupations for both children and adults and probably some sort of financial assistance during the period of actual transfer and adjustment. One can imagine the wild enthusiasm with which such a program would be received by urban workers, particularly at the present time!

If the nation does not adopt a straightforward program of curtailing agricultural production to a domestic basis, a decade of lower prices and disappearing markets would result in severe adjustments of farming population. The best efforts of everyone should be bent toward determining what the trend will be for the next ten years. If it appears that lower prices are impending the

ensuing population problem should be faced and some program inaugurated to prevent so far as possible undue hardships of those affected. There is another alternative, that of artificially enhancing prices through inflation, price fixing, or export subsidies of one kind or another. This is an unhappy choice to make. One choice would prove immensely unpopular and would be considered visionary and impractical; the other would probably be ineffective, or if effective, disadvantageous over a period of years.

The effect of continued price declines upon the capital structure of agriculture must not be minimized. For the time being the term "capital" will be used as synonomous with "investment." In the case of land, values will undergo a drastic deflation. It would seem that land values have already been deflated. But if prices continue to decline, production to be restricted and land to be thrown out of use, the end of the decline in land values is not yet in sight. In areas where land is thrown out, farm values will disappear. In the less productive areas the decline will be very severe. The existence of a large supply of land available for cultivation will depress land prices in the best agricultural sections.

Lower land values may prove of serious consequence to many investors in farm land mortgages. Should this adjustment take place whole regions will become virtually valueless and investments in farm mortgages in these regions will be largely lost. In case of some institutions this may be sufficient to cause their insolvency. Even in the best farming regions it is difficult to see how severe losses by mortgage lenders can be prevented. Eventually land values will become adjusted to the lower price level. The present generation of land owners and mortgage holders will bear the burden of the decline. There will doubtless be a very large turnover in land ownership due to foreclosures unless ways and means are found by which mortgages can be scaled down. Once adjustments are made so that products can be produced on the lower price level land values will become stabilized. In times past land values have been based upon expectation as well as upon realization. Expectations of higher income have largely disappeared and they are unlikely to reappear during a period of lower prices for agricultural products. Gradually an income will accrue to land but in the readjustments a larger share will go to capital than has hitherto been true and it is probable that farmers will insist on a personal return compara-

ble to that received by city workers before a surplus will emerge sufficient to support land values on a very high level. Land, by and large, having no alternative economic uses other than agricultural, will be unable to maintain its returns as well as can capital.

Maintenance of incomes of those remaining on farms will be contingent upon their adopting the most improved methods of production in order to reduce costs. As these improved methods require considerable capital expenditure, this will be a factor in curtailing the share of the income accruing to land and consequently of land values. Capital will be available only upon the basis of returns comparable to those received from investments in other industries

The part capital investment will play during the ensuing decade leads to a consideration of mechanization of agriculture. During a period of lower prices, with survival often depending upon ability to forestall cash expenditures, farmers will not be inclined to make large expenditures for improved machinery. This at least will be the first reaction. Later, however, as it becomes apparent that only by lowering costs can they continue operations there will be increasing acceptance of machine methods. This will involve a larger investment in relation to the whole than formerly. In part this investment will be made at the expense of land values.

Adoption of mechanized methods will of course be uneven. In some sections and for the production of some crops mechanization will not reduce costs as much as in other sections. In the less favored areas there will doubtless be a trend toward self-sufficiency as competition with more favored areas in producing crops for market will be very severe. In areas having level topography and suitable soil and climatic conditions production will be mechanized rather rapidly. Farmers soon will learn that only by producing large quantities of products per man can they survive. In these areas many of the present farmers will find themselves unable to meet the new capital requirements and they will be replaced by others who are in a stronger financial condition. Mechanization will take place slowly for the present. The severe depression has reduced funds available for investment in machinery but presently the farm business will become adjusted so that funds will be available for such capital investment. Mechanization may take place more rapidly than in the past as the necessity of reducing costs will be so much greater than formerly.

From the foregoing analysis it is clear that this whole problem is one of response of production to price stimulus or to use a more technical term "elasticity of supply." Factors influencing the celerity with which production will respond to price changes are of varying degrees of importance. For the most part production of agricultural products responds only slowly to declines in price. This is due to the relatively large proportion of capital having a slow turnover to that which is quickly turned. Once the investment is made the operator has little choice but to continue production. He may have some opportunity to shift to other products but competition with other regions having superior production conditions may effectively bar much of such shifting.

The relative immobility of labor is another factor contributing to the sluggish response of production to lower prices. The farmer does not have alternative employment readily available. In normal times the urban worker can shift from one industry to another without great loss of time or inconvenience. When the farmer shifts from agriculture to industry the change is almost as drastic as emigrating from one country to another. All of the old social relationships are disrupted, there is a long expensive move to the city, there is the scrapping of technical skill and the acquiring of new skills, the securing of employment, adjusting to new conditions of work and of living, all of which contribute to the difficulty of getting people from the farm to the city. This slowness of response to lower prices and lower incomes is an important factor in maintaining agricultural production under adverse conditions.

Once land is subdued and is producing it requires tremendous economic pressure to force its abandonment or force its transfer into other uses. Ownership of land—regardless of its quality—involves personal investment of capital, labor, or both. Owners are very loath to give up such investments and will continue producing as long as they can pay taxes and maintain even a poor standard of living, in the hope that a change for the better will enable them to retrieve their investment. If land is mortgaged, both the title holder and the mortgagee bend every effort to keep the land in production, the one to preserve his equity, or supposed equity, the other to maintain his investment. The state, too, is interested in maintaining land in cultivation so that it will not lose the land as a source of revenue.

There is tremendous pressure, therefore, executed by social, economic and political forces to keep land in production. Small

wonder therefore that production does not respond to price changes quickly. The strength of these forces will vary from region to region and from one type of crop to another. Doubtless a quicker response to changing conditions would be desirable. If response could be quickened there would be fewer hardships on people involved and less economic loss. It would appear to be the duty of responsible agencies to smooth the way for more rapid adjustment by anticipating what and how much adjustment must be made, and assisting by financial and educational aid to bring about rapid readjustment in conformity with changing economic conditions.

## Discussion by I. G. Davis

I do not find myself in pronounced disagreement with the essential conclusions of Professor Black's paper.

The illusory character of the gains to be made from reducing agriculture to a domestic market basis are correctly described. The problems of population adjustment, and the measures that must be taken to facilitate this adjustment, the progressive depreciation in the value of the farmers' investment and the slow, reluctant, but finally necessary adoption of machines that reduce costs of production, are all important conditions and adjustments which have been brought to our attention by Professor Black.

I cannot disagree with him either in dismissing the proposals for enhancing prices through price fixing as export subsidies as likely to prove ineffective, or if effective, disadvantageous over a period of years.

From the time this program came to my attention however I have been dissatisfied with the form of the hypothetical question propounded for our discussion this evening.

A falling general price level and declining foreign demand for our agricultural products are not necessarily or historically associated. They are two separate forces and their results should be considered separately and not together. From the standpoint of the utilization of our agricultural land, labor, and capital, there are other factors, such as increases in the productive efficiency and livestock, motorization of farms, shifts in prospects of population growth, which are fully as important and have similar effects as shifts in the foreign demand for our products. The sum total of these changes has been to create pronounced "excess capacity" in the agricultural industry relative to its market, and regardless of how we stand on the academic question of whether or not "over-production" exists, this excess capacity has been waiting ready to come immediately into play the moment prices in any portion of the field of agricultural production promised any return over variable costs. If we can assume, as our question implies, that these trends are to continue, that the present tariff policy of the United States is to persist, that the present depression is but an interlude in the progress of American industry, that agricultural technique will continue to move in the direction of more output of final products per man and per acre, then we must conclude that there will be a contraction of the margin in agriculture as a whole. Adjustment would involve gearing up the machinery of agricultural credit extension, of extension education, of public land policy, and of public utility extension and public expenditures to facilitate the most rapid contraction of

the margin as a whole consistent with the demands of humanity and the dictates of common sense.

We may further conclude, it seems to me, that there will be pronounced shifts in the margins of production of various crops and changes in the type of farming in many regions. Professor Black has already discussed this question with relation to the corn belt and the old cotton belt.

A falling general price level, if completely disassociated from the trends of agricultural technique noted above does not, it seems to me, involve any important problem of contraction of the margin of agriculture as a whole. A falling price level represses industrial and commercial activity. Its effects on business, however, are complicated among other things by changing costs growing out of changed methods, new machines, or vanishing or expanding sources of raw materials. If I remember my long-time price charts rightly, the long-time price swings may be pictured as sharp drops punctuated by periods of fairly stable prices. Undoubtedly the farmer suffers during the sharp drops. He may not become adjusted to one before another occurs. Professor Black has touched upon these effects.

If we try to isolate the effects of a falling price level, however, from the effects of technical factors, export demands, and the cyclical changes in the demands of industry for agricultural products, it seems to me that the following may be said of the effects of the falling price level itself independent of the influences of the other factors:

1. That they involve directly little change in the margin of the agricultural industry as a whole except such as arises in the demand for agricultural products on the part of industry.

2. That they compel the farmer to attempt to reduce costs and thus bring into operation new forces of a technical character.

3. That they bring about some changes in the margins for specific enterprises. In brief, due to increased costs of transportation and marketing there is likely to be some additional tendency for larger regions like the northeast, the Great Lakes region or the Pacific Coast to become more self-sufficient with reference to bulky food stuffs and those bearing a heavy transportation, country or marketing charge.

I of course recognize that falling price level may itself be a cause of technical improvements and of changes in the character of export demand. It seems to me, however, that our present changes in export demand and technology are sufficiently independent of the causes and effects of a falling price level to make it proper in a discussion of this kind to segregate them as independent factors.

If divorced from all other causes, it would seem to me that a falling general price level in and of itself during a period including all phases of the business cycle could have little effect on the extent of the agricultural enterprise in the United States as a whole, but that the adjustments would be in the direction of more attention to keeping down variable costs, and a tendency to postpone fixed costs. It would seem further that the technical and cyclical considerations being eliminated, any marked curtailment in production induced by a falling general price level would eventually be compensated by a later rise in relative prices of agricultural products.

# ADJUSTMENTS NECESSARY IN TAXATION IN VIEW OF THE POSSIBILITY OF A LOWER GENERAL PRICE LEVEL[1]

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Definition of terms is among the first requirements in the introduction of a subject, unless the terms to be used are so uniformly understood that apparent differences of meaning are unlikely. Unless defined, the word "adjustment" may serve quite as conveniently to hide as to elucidate meaning, thus permitting modification and even reversal of ideas with the minimum of embarrassment. For the present purpose, the term "adjustment" in relation to farm taxation means reduction in taxes levied on farm property.

The full title of this paper seems to imply a special need for tax reduction at this time. While the reality of this need in agriculture can be accepted without argument, it may be well to call attention to the relation of property taxes to full value of land and buildings in various parts of the country. This is shown in Figure 1 which is based on Census reports of taxes for 1929 by 2,019,000 full-owner farmers owning no other farm land.

No attempt will be made here to analyze the significant relationships that may exist between the tax facts represented by this map and certain other agricultural data. In relating taxes to value of farm real estate we are not dealing with altogether independent variables. Nevertheless, it is significant that taxes in many parts of the country in 1929 exceeded $1.50 per $100 of full valuation. This year (1931) the ratio of taxes to value is materially higher because of a sharp drop in land values with the probability of only a slight decline in taxes.

In relating the necessity of tax reduction to the general price level, we shall examine briefly some of the conveniently available data on the relation of taxes to price levels in the United States and in Great Britain in the past century.[2] These data have their limitations. In the first place, increases in taxes or in

[1] "Adjustments in Taxation Necessary in View of the Possibility of a Lower General Price Level and Reduced Foreign Demand for Agricultural Products in the Next Ten Years," is the full title assigned.—Presented at the Twenty-second Annual Meeting of the American Farm Economic Association, Washington, D.C., Dec. 28, 1931.

[2] The author is indebted to Janet L. Weston of the Division of Agricultural Finance, Margaret Olcott of the Library Staff, and to the Division of Statistical and Historical Research, Bureau of Agricultural Economics, for compiling the data on which Figures 2, 3, and 4 are based.

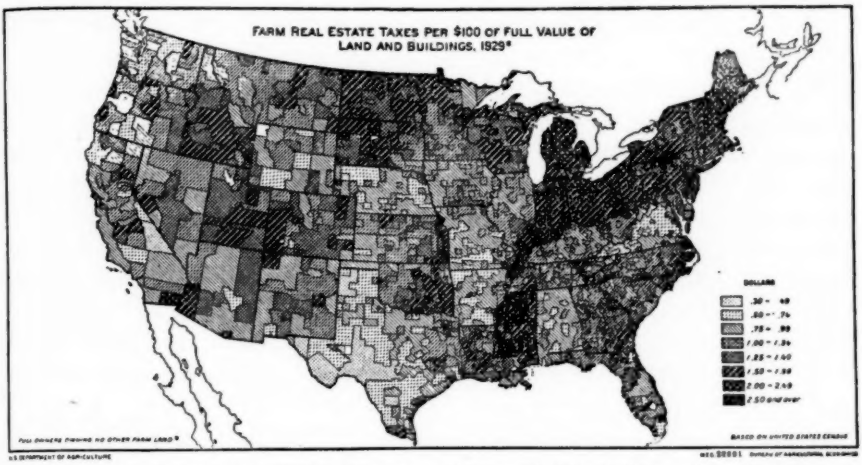


FIGURE 1.—Farm real estate taxes in 1929 per $100 of full value of land and buildings vary greatly in different parts of the country. This map is based on data compiled on a county basis by the United States Census of 1930, and represents 2,019,000 farms including 245,280,000 acres. These were farms operated by full owners owning no other land and reporting both real estate taxes and total taxes on all property in their farms.

revenue receipts, especially of national governments, are most pronounced in war time when price levels are inflated by war financing and war demands. Public obligations incurred in war time persist after the close of hostilities and after the price stimulus has come to an end, thus helping materially to resist such pressure as declining prices may exert in the direction of lower taxes.

Another limitation, probably more applicable to local than to national taxes, is found in changes that occur in the nature of taxation over a long period. In earlier times the demands of government in many cases were met relatively more by personal services and less by money contributions. With the increase in specialization and with the approach to completeness of exchange economy, contributions to government in kind or in personal services have been replaced by contributions in money. I know of no investigations showing to what extent this accounts for the increase in the money cost of government.

Still another possible limitation of these data lies in the fact that, while revenues, taxes, and debt are shown on a per capita basis, no attempt is made to allow for any inherent relation that may exist between density of population and cost of government.

Even with these and other limitations that might be cited, helpful inferences may be drawn from trends of prices and of revenues or taxes since the beginning or since the middle of the last century. The belief that this general comparison may be useful from the standpoint of tax levies on farm property rests on the fact that farm taxes have risen because of increased expenditures coupled with the well-known faults of the general property tax, and upon the further fact that the particular increase in expenditures that has caused farm taxes to rise is a part of the universal increase in public expenditures under every system of taxation.

For the present purpose, however, we are less concerned with the intricate reasons for the increase or decrease in expenditures and tax levies than with the bald question: *Have taxes declined in periods of falling prices, particularly the taxes more directly related to the farmer's tax problems?*

Four charts will be examined from the standpoint of the trend of per capita tax levies or per capita expenditures in relation to prices. In the trend of the imperial revenues per capita in Great Britain since 1840 or in the per capita local rates in England and Wales since 1868, do we find any evidence of a definite tendency of taxes to decline in periods of falling prices?

No decline in per capita imperial revenue occurred in the period of price decline from 1840 to 1851. A very slight decline in per capita revenues occurred in the long period of falling prices from 1873 to 1895. Before the period of price decline came to an end in 1896, however, per capita imperial revenues began to rise, and shortly after the close of the World War reached the tremendous peak of more than six times the 1910-14 average.

Local rates per capita in England and Wales increased gradually in the period of declining prices that ended in 1896, and increased with greater rapidity as prices advanced after that year. A sharp but temporary drop in rates occurred after the peak of 1921, which may be attributable, at least in part, to the precipitous fall in prices. It is significant, however, that the rates again began to rise in 1924 when, after a brief interruption, the general price level resumed its downward trend, indicating that for a time at least in England and Wales as in the United States, the forces tending toward higher taxes were stronger than any influence which falling prices may have exerted in the opposite direction. We shall not here discuss the changes in rates in later years due to far-reaching alterations in fiscal policy.

Turning to this country we find, in a similar bird's-eye view of the trends of prices and taxes, that per capita Federal Government receipts declined slightly from about 1810 to 1840, while the general price level fell about 33 per cent. Then followed a decade of increasing per capita receipts despite a further decline in prices. The Civil War period, of course, necessitated an increase in revenues accompanied by the familiar war-time

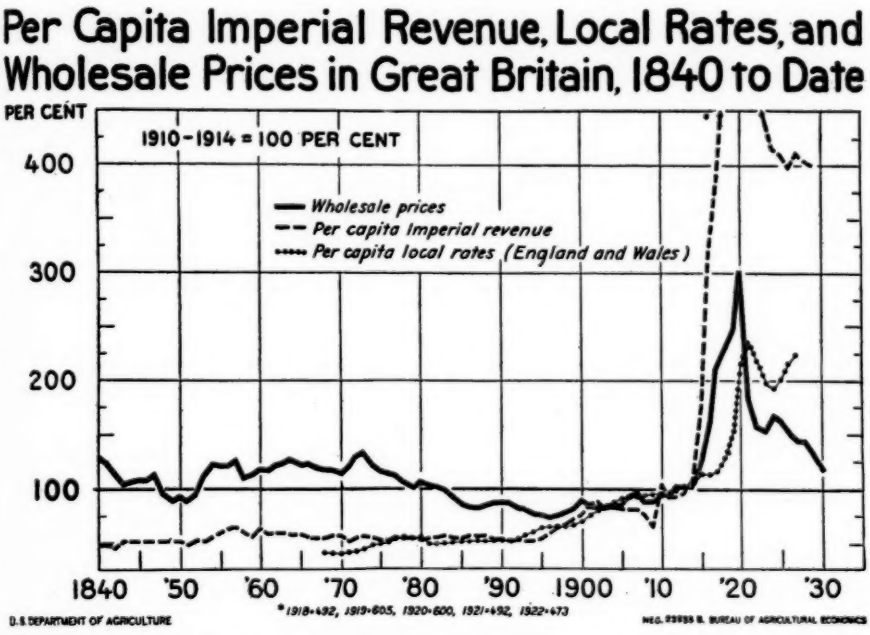


FIGURE 2.—Trends of per capita imperial revenues in Great Britain and per capita local rates in England and Wales compared with the trend of wholesale prices in England: 1840 to 1930. (Data on imperial revenues and local rates from the *Statistical Abstract*, United Kingdom.)

phenomenon of inflated prices. After the Civil War, however, both prices and per capita national revenues declined till the middle of the nineties, and then increased in approximately the same proportion till the beginning of our part in the World War when per capita receipts necessarily soared, reaching a peak of nearly eight and a half times the 1910-14 figure.

It should be noted, parenthetically, that national revenues, in this country as in Great Britain, are influenced not only by tax rates but also by changing prices, since these revenues are based on money income, imports, excises and other sources the

size of which depends so largely on prices and volume of trade. National revenues are mentioned here only incidentally because of their bearing on the general trends of public expenditure.

Since taxes on farm property are levied only for State and local purposes it is more significant for the present purpose to examine State and local taxes in relation to price trends. Beginning with 1860, the first year for which data on ad valorem taxes

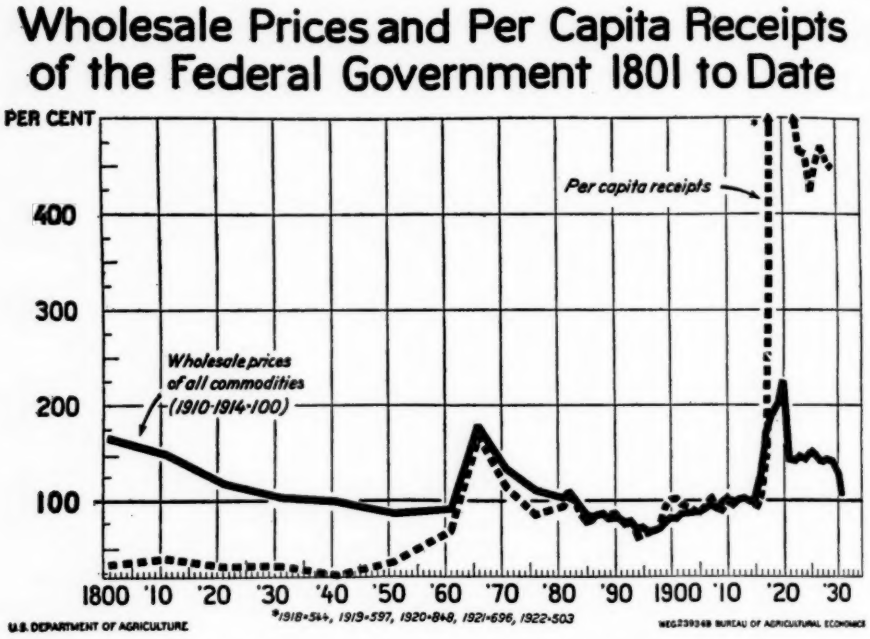
Wholesale Prices and Per Capita Receipts of the Federal Government 1801 to Date
PER CENT
400
300
200
100
Per capita receipts
Wholesale prices of all commodities (1910-1914=100)
1800 '10 '20 '30 '40 '50 '60 '70 '80 '90 1900 '10 '20 '30
*1918=544, 1919=597, 1920=848, 1921=696, 1922=503
U.S. DEPARTMENT OF AGRICULTURE
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FIGURE 3.—The trend of per capita receipts of the Federal Government compared with the trend of wholesale prices of all commodities in the United States.

for State and local governments throughout the country are available, we find a gradual and continuous increase in per capita taxes despite the drastic decline in prices from the Civil War till 1896. (See Fig. 4). Then, with increasing prices, State and local levies advanced more rapidly to the beginning of the World War and with great rapidity until the close of the post-war price inflation. The fall in prices in the post-war period only retarded the rate of increase, for State and local taxes continued to advance till 1929. In the past year there has been some indication of a slight downward trend in these taxes, suggesting that we may be entering a period in which State and local taxes will yield reluctantly to the pressure of a falling price level.

In this connection it is interesting to note the trend of indebtedness of State and local governments. Prior to the upward turn in the general price level in the nineties, the period for which comparable data on debt are available is about evenly divided between a slight decline and a slight rise in per capita indebtedness. After about 1895 and especially since 1912 State

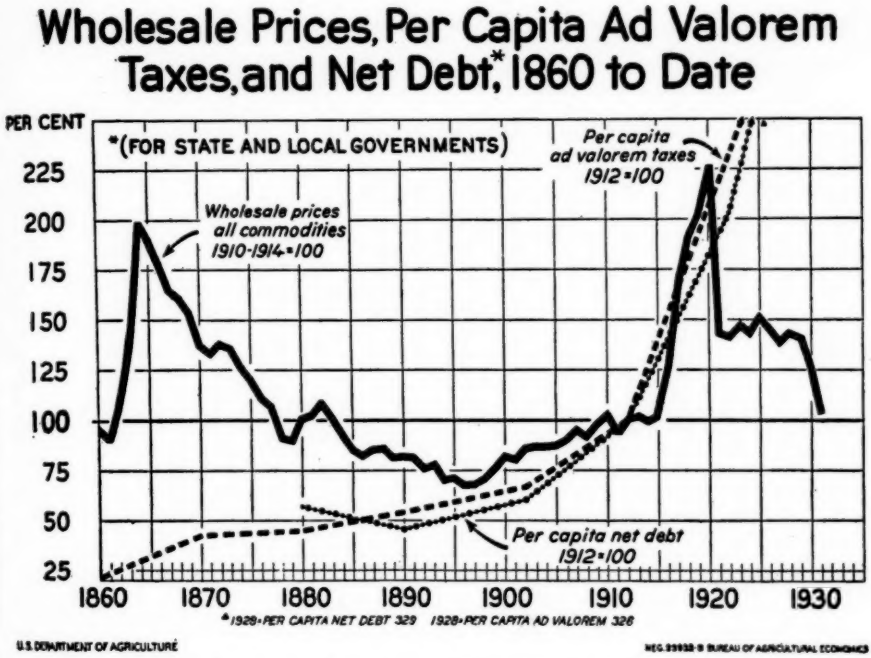


FIGURE 4.—Trends of ad valorem taxes since 1860 and net debt for State and local governments since 1880 in the United States compared with the trend of wholesale prices. (Data on taxes and debt up to 1922 from the reports of the United States Census on Wealth, Debt and Taxation, and from estimates of the National Industrial Conference Board from 1923 to 1928.)

and local indebtedness rose at a terrific rate, reaching in 1922 a level 103 per cent and in 1928, 229 per cent above the 1912 base.

This greatly increased indebtedness of State and local governments is but a part, albeit an important part, of the broad problem of indebtedness in general, both public and private,—indebtedness, largely contracted in years of relatively high prices. If general prices should remain at about their present level for a period of years or decline further, this far-reaching problem of indebtedness is practically certain to result in serious stress and strain, both political and economic.

Data on farm taxes as such are not available for a sufficiently long period to permit comparison with earlier years of declining prices, except in New York and Ohio. The New York data go back to 1854 and the data for Ohio to 1880.

Farm taxes in New York rose tremendously in the Civil War period and declined sharply from 1865 to about 1880. "The great

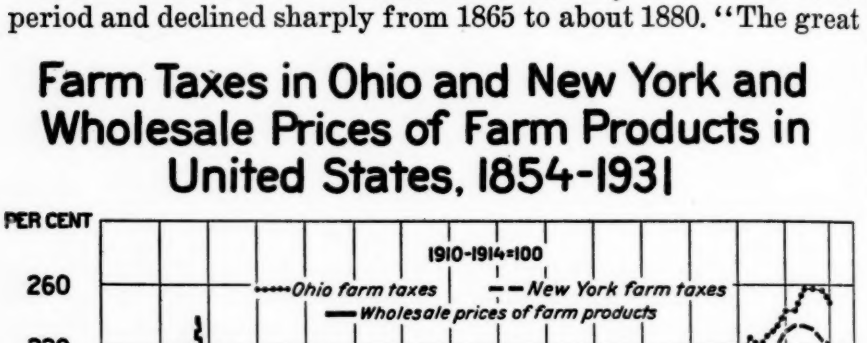


FIGURE 5.—Trends of farm taxes in New York since 1854 and in Ohio since 1880 compared with the trend of wholesale prices of farm products in the United States. (New York tax data from *Farm Economics* (Cornell University), May, 1928, page 909. Ohio tax data from *The Bimonthly Bulletin*, Ohio Agricultural Experiment Station, January-February, 1928, page 30.)

rise of 1864," says Professor Kendrick, "is accounted for partly by rises in prices but mostly by the bounty taxes which reached their peak during that year. State, county, and in many instances, town bounty taxes were spread upon the tax rolls."

Since the causes of the rapid increase and the subsequent sharp decline in New York farm taxes in this period were associated with demands peculiar to the Civil War years, it does not necessarily follow that a similar decline in farm taxes will occur in the present period of falling prices. In fact, we have had about

ten years of a general downward price trend acompanied by an increase in farm taxes, except for a slight decline in the last few years in New York State evidently due more to an extension of State aid than to declining prices.

The estimated trend of farm taxes in Ohio goes back to 1880. For nearly 20 years the trend was practically horizontal, following fairly closely the trend of the general price level. Shortly after the turn in prices in 1896, Ohio farm taxes began to rise with the increase in the farm price level and continued to rise rapidly till 1925 when the rate of increase was greatly reduced. For the past two or three years a slight tendency toward lower farm taxes has appeared in that State.

The foregoing presentation of data hardly justifies specific conclusions as to the effect of declining prices on tax levies. A few generalizations, however, may be warranted. Declining or approximately stationary prices no doubt have resisted the normal tendency toward larger expenditures and higher taxes, thus preventing taxes from going as high as they otherwise would have gone. With rising prices, tax levies naturally enough have risen steadily. In times of falling prices, on the other hand, taxes have yielded very reluctantly if at all, especially in the years of price decline following the World War.

Two fairly obvious generalizations help to account for the failure of State and local taxes to respond to falling prices in recent years: Wages have remained high, and the last decade has been one of expanding governmental services and improvements especially in schools and roads, which account for the greater share of the increase in taxes on farm property.

It follows, therefore, that if prices should decline or remain at their present level for some time, any large reduction in State and local taxes generally will depend on reduction in wages (including salaries) or on curtailment of governmental services and improvements, or both.

One important difference marks the present period of declining prices compared with the earlier periods to which the above data refer. The difference lies in the fact that taxes now are much higher than in earlier periods whether measured in total amounts, in dollars per capita, or in relation to prices, property values or income. This fact, in my opinion, foreshadows a very material reduction in public expenditures and tax levies, if prices should decline further or fail to rise in the next few years, and especially if the forces that have brought about the world-wide

depression in business activity should continue to defy efforts for speedy recovery. Under such conditions, reduction in taxes appears inevitable despite the fact that State and local tax levies advanced gradually in the long period of price decline following the Civil War, and notwithstanding the persistent refusal of expenditures and taxes to decline in the past decade.

Reduction in property levies will result not only from the actual inability of much of our property, especially farm land, to bear the taxes levied upon it, but also from what appears to be an imminent change in public opinion relative to expenditures and taxation. It would be very rash to attempt to name any figure or ratio as marking the limit of the taxable capacity of any people, especially under a form of government such as ours which gives the people a voice in determining the purposes for which their tax money shall be spent.

Notwithstanding the fact, however, that State and local funds are spent largely for schools, roads and other purposes which the people generally hold in high esteem, it appears reasonable to suppose that public sentiment will not permit a continuation of the expenditure of two to three times as many dollars per capita as in 1910-14 if prices should remain at or below the prewar level.

Agriculture today is confronted with four stubborn and most discouraging facts: First, the total farm mortgage indebtedness, largely contracted in years when prices of farm products were nearly twice what they are now, is nearly three times as high as in 1910;[3] second, prices of farm products are nearly 30 per cent below the prewar level; third, the purchasing power of farm products in terms of prices paid by farmers is about 40 per cent below the 1910-14 average; and, fourth, property taxes per acre are about two and a half times as high as in 1913, because of increased State and local expenditures and excessive reliance on the general property tax.

Of all the "adjustments" needed in agriculture in view of these facts, real *tax reduction* is surely one of the most urgent. Not only is it needed but, in my opinion, it is inevitable especially *if* we are facing "a lower general price level and reduced foreign demand for farm products in the next ten years." The title assigned suggests that ways and means of reducing farm taxes should be the main theme of this paper. Having discussed farm tax reduction on several recent occasions, I shall give here

[3] Estimated total farm mortgage debt: 1910, $3,320,470,000; 1920, $7,857,700,000; 1925, $9,360,620,000; 1928, $9,468,526,000; and 1930, $9,241,390,000.

in skeleton form only some of the main points in a program for bringing about the adjustments needed in taxation in relation to agriculture:

Improvement in farm taxation, to meet the present situation or the situation that would confront us if the price level should decline further, must follow the three familiar lines of (1) better administration of the laws we have, (2) reduction in State and local expenditures by judicious curtailment of functions, reorganization of governmental units and reallocation of functions, and (3) revision of our tax system to require farm property to bear less and other forms of wealth relatively more of the total levies necessary to get the revenue needed even after we have made such curtailment in total expenditures as may be possible. These lines of improvement do not call for anything that is new to students of taxation, but demand vigorous prosecution of those specific measures that are more or less familiar to all.

### I. *Better administration of present tax laws*

A strong central tax commission or commissioner, with ample legal powers and with sufficient means and personnel to perform its functions effectively and reasonably free from partisan political interference, is needed in the States that do not have such authority. This would do much to put on the tax rolls property which is legally taxable but which now escapes taxation, and would help to reduce taxes on farms, homes, and other property now bearing the burden.

### II. *Reduction in expenditures*

(1) Some form of budgetary control is needed. Then control of the budget should be vested largely with the central authority, preferably the tax commission.

(2) Analysis of expenditures whether to be met by current taxation or by bond issues. Such analysis should indicate specifically the meaning of the proposed expenditures in terms of tax levies and should be given wide publicity in the plainest terms possible, before the community is definitely committed to the proposed expenditure. When proposed improvements are to be financed by borrowing, a substantial sum should be made available out of current revenues to finance a part of such improvements. It would be an application to public affairs of the principle of down payments for private purchases on the installment plan.

(3) Further study should be made of the reorganization of local government and reallocation of functions. This should help to show where and how economies may be effected.

(4) Local taxpayers' committees should scrutinize present and proposed expenditures to determine where curtailment may be made in public improvements and services with least injury to the public service. A flat percentage reduction in expenditures for all purposes may be more injurious to the public service than necessary. Even with this, it is problematical how much reduction in expenditure is possible, in view of the common resistance to governmental reorganization and the well-known public urge for more instead of less improvements and services.

(5) When the present depression shall have come to an end, as I believe it surely will, and when its effects shall have been largely mended or forgotten in another period of reasonably general prosperity, dominant public opinion again will change, from retrenchment to expansion in public expenditures. Any attempts at tax revision should recognize that when the urge for retrenchment shall have been relaxed and forces for increased expenditures again shall have become dominant, the fundamental need for economy and for resistance to sporadic and ill-conceived expansion of expenditures will be as urgent as now.

In formulating any program of revision, determined effort should be made to provide effective checks as a part of the fiscal system itself. I believe it to be an essential part of any effective, long-time program for economy in State and local expenditures, that in revising the system of taxation the duty of *conscious* contribution to the support of government should be extended to as large a percentage of the population as possible. This would help to check ill-considered expansion of expenditures and should aid in stimulating a keener interest in State and local government. I see little hope for effective control of expenditures in the long run, under a system of taxation whereby the many vote and the few contribute consciously. This point of view is by no means inconsistent with any reasonable interpretation of the ability-to-pay principle including progressive taxation.

### III. *Tax revision*

(1) This should rest upon the principle that personal income is a practical measure of ability to pay and that every citizen having taxable capacity should contribute to the support of the government under which he lives and from which he derives daily

benefits. A strong tax on this basis would not only yield substantial revenue, but would help to emphasize the individual citizen's personal responsibility for his State and local government.

(2) Federal and State relationships should be worked out carefully so as to avoid harmful double taxation with detrimental economic and social effects. Among the things needed is a clarification and restatement of State and Federal relationships in taxation. In this the central aim should be to achieve ultimately a revenue system for the country as a whole in which local, State and Federal taxes would be coordinated into some logical scheme. This should recognize the essential economic unity of the country as a whole and should be consistent with the basic differences among national, State and local authority from the standpoint of effective and economical administration of various taxes. Fortunately, this problem has been officially recognized by our major farm organizations with specific recommendations relative to it.

It is rather discouraging that so little progress was made in tax revision in recent years of agricultural depression in the midst of industrial prosperity. Tax revision then was nearly as urgent as now, to correct the inequalities that have grown out of rapid expansion in public expenditures coupled with excessive reliance on the general property tax, a tax that has come to be little more than a real estate levy and therefore one of specially severe burdens on agriculture. Farmers were told that they had only themselves to blame for their tax troubles since their taxes were mainly local. In effect they were told to curtail expenditures for schools and other rural institutions through which they were attempting to maintain American standards and to keep abreast of progress. The fact was overlooked that farm taxes rested on a contracting tax base while other taxes in the main were upon an expanding tax base.

Now that the urban property owner feels keenly the pressure of a revenue system that no longer fits even remotely the realities to which economic evolution has brought us, there is more hope for real tax revision.

DISCUSSION BY M. SLADE KENDRICK
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We have plenty of depression, but not in taxation. The deficits of the Federal Government and of many state and local governments, the rising budgets of some units and even the frantic slashes in the expenditures of others, all remind us of the ever-important problem of tax revenue.

What can be done about this problem of taxation as it concerns agriculture? Omitting consideration of possible economies and reorganization in government—a subject covered by Dr. Englund's paper—and thus confining the examination strictly to matters of taxation, I see this problem under three main headings:

1. The assessment of real property.
2. The expenditure basis of levying the general property tax.
3. The development of a system of taxation.

I shall take these up in order, commenting briefly—far too briefly, I fear—on each.

Approximately one-half of all taxes levied in this country are on property. The general property tax provides more than 90 per cent of all tax revenues of units of local government and around 80 per cent of all tax revenues of state and local units of government. In view of the extreme fiscal significance of this tax, it is incredible how badly the property on which it is levied is assessed. By far the greater part of this property is, in practice, real property. Within the last few years many state studies of taxation have appeared. Most of these have a section on assessment. The evidence of these studies is that real property, both urban and rural, is badly assessed. There are exceptions, but the general rule is bad assessment with every conceivable type of discrimination operative. These maladjustments, with some property owners paying more than their share and others less, add appreciably to the burden of property taxation. A single example will illustrate this. It has been computed that in Oregon one-half of the real property in the state bears two-thirds of the real property taxes and the other half bears only one-third.

The simplest and most obvious way to begin remedying this situation is to improve the assessor. The assessor must be made an expert. This means that he must be appointed to office on the basis of suitable qualifications and given that security of tenure and size of salary needed to attract the well-qualified person. The system of selection by the voters, short tenure in office and rapid turnover has been tried and found wanting. It is time to recognize that assessing is an expert's job and that experts cannot be chosen by popular election but that they may be chosen by state tax commissions.

The general property tax is levied for the most part on the basis of expenditures. Revenues from other sources are subtracted from actual or estimated expenditures and the remainder is levied on property. Subject to variations in revenues from other sources and to variations in assessed valuation, the rate of general property taxation varies with expenditures. When more spending is in prospect, the *rate* is increased, when the less is forecast the *rate* is lowered. This variable rate of property taxation is to be contrasted with the relative stability of rates of other taxes. An income tax rate of 3 per cent stays 3 per cent until changed by law. If a change is proposed a legislative battle is precipitated. Thus there is a decided tendency for the rates of taxes other than property to remain fixed and for the rate of property taxation to change annually.

This method of levy has at least two significant effects; one of these operates during the course of the business cycle; the other in relation to the trend of public expenditures.

During the prosperity phase of the cycle, taxes on farm property rise less rapidly than the prices of farm products because governmental expenditures rise less rapidly. This means that more income is available for capitalization in land values than would otherwise be the case. During the depression phase, governmental expenditures are reduced little, if at all, and may increase. Thus less income is available for capitalization in land values. The inevitable effect of this method of levy is to accentuate fluctuations in the value of farm real estate during the course of the business cycle. An

excellent illustration of this effect is afforded by a comparison of the prices of farm products, taxes on farm property and values of farm land from 1912 to the present. From about 1916 to 1920, prices rose much more rapidly than taxes and land values tended upward. The coming in 1921 of the long agricultural depression found taxes high. They continued high though prices of farm products fell and the value of farm real estate declined. Not all, for other factors were at work also, but part of the enormous inflation and deflation of farm real estate values since the prewar period is to be attributed to the expenditure basis of levying the tax on farm property.

The relation of the expenditure basis of levying the general property tax to the trend of public expenditures may be illustrated by a comparison of the *rates* of property taxation with the *rates* of other taxation in New York and in Connecticut. In New York the rates of taxes other than property taxes which were in effect both in 1915 and in 1929 were in general the same in these years. An enormous increase in public expenditures was financed by additional revenues from new taxes and by larger yields from old taxes. In general, rates of taxation were not raised. The same comparison in Connecticut for the years 1918 and 1929 yields the same result. In both states the rates of taxes other than property taxes were remarkably stable during the periods examined. But when the true rates of property taxation are compared over these periods, a great increase is indicated for each state. Now if the *rate* of property taxation which was in effect in New York in 1915 or in Connecticut in 1918 was the correct rate, it was clearly wrong in 1920 when it had increased. If it was correct then, it was wrong in 1925. If the rate of property taxation now effective is the correct rate, then clearly the rate of this tax which will be operative in 1935 will be different and therefore wrong. Under the expenditure basis of levying the general property tax, no possible basis exists for obtaining and retaining any rate which by any test may be considered a correct rate.

One may answer that since local units of government levy most of the taxes on property and since these units depend on the property source for most of their tax revenue, the expenditure basis of levy is inevitable. True, but if present arrangements contribute to results which are undesirable, perhaps the arrangments had better be changed.

This brings me to the third point in my program of adjustments in taxation—the development of a system of taxation. Our scheme of state and local revenues is one in which accident, expediency and political pressure have been far more important than plan. The result is that we have taxes but not relations between taxes except that relation whereby the property tax makes up all the lack in local tax revenue. It seems to me that with taxation so significant by every measure and possibly destined to become still more important, it is unreasonable to continue to levy taxes and to adjust their rates on the basis of expediency, political pressure or what not. The power of taxation is mighty, in the well-known phrase "the power to destroy." But it is more than that. Through expenditure it is also the power to create and to build up. Surely this powerful instrument is worthy of study in all of its relations, including the relations between taxes. When new demands for revenue arise, the information where this revenue should come from should be available for legislative bodies. How much from income, how much from property, how much from gasoline tax, etc. The only possible way of making it available is through a study of relations between taxes, which means the development of a system of taxation. The problem is indeed difficult but I think it is not an impossible one. I think that it could be approached through a study of public expenditures and of their benefits to economic groups. But its solution however attained—and with the corollary of relations between state and local taxation worked out—would be the most important achievement possible in the field, not only of agricultural taxation, but of all taxation.

# ADJUSTMENTS IN CREDIT[1]

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Readjustments in credit practices assume increased importance in periods such as the present. With gross returns sharply reduced by the lower level of farm commodity prices, great difficulty has been encountered in meeting fixed charges such as interest and taxes. The problem of reorganizing the farm enterprise so that the gross income may be sufficient to meet these fixed charges, in addition to current operating expenses, involves, among other questions, a careful consideration of the use of credit.

The possibility of credit adjustments as a means of improving the net returns of the farm enterprise involves careful planning in farm management or in farm organization. The effectiveness of a curtailment in the volume of credit employed or in the use of additional borrowed funds can be measured only in terms of such changes in net income as result from the accompanying changes in farm operations. The action of the individual farmer in making readjustments in the farming program which seem expedient under the present unfavorable farm income situation, however, may be, to a large extent, governed by his ability or inability to obtain credit accommodation.

Efforts directed towards decreasing requirements for current financing will involve chiefly an increased utilization of the labor-time of the farm operator and his helpers in producing feed and food products which formerly were purchased. As a condition for obtaining advances from the emergency loan fund for the purchase of seed, feed and fertilizer, the Department of Agriculture has insisted that adequate provisions be made for the planting of feed and food crops. As a result of this policy, farmers in those areas where federal advances were obtained, will enter the 1932 crop production season with a reduced requirement for current financing. The opportunities for reducing credit requirements through the adoption of similar policies is especially applicable in the so-called one-crop regions.

A careful consideration of "out-of-pocket" expenses naturally recommends itself in times such as the present. The fact that the farm unit is both a home and a business, however, leads to cer-

[1] This paper was read at the Twenty-second Annual Meeting of the American Farm Economic Association at Washington, D.C., Dec. 29, 1931.

tain difficulties in reducing credit requirements. Much of the expenses of the farm, other than certain food and feed requirements, cannot be reduced except as the prices of the commodities or services which the farmer purchases, decrease.

The extent to which current expenditures can be immediately reduced through lower interest costs on credit utilized for the farm enterprise is relatively limited. The inadequacy of credit facilities in many areas precludes the possibility of such reductions at this time. There are, however, instances where better planning can result in material savings in interest costs.

Merchant credit in many areas is obtainable only at a considerably higher cost than other forms of credit. By decreasing the dependence upon this type of credit, by growing more food and feed crops at home, the individual farmer becomes a better credit risk and is frequently able to obtain such credit as he actually requires at a lower rate from local banks or credit corporations.

In recent years, there has developed a most unsatisfactory situation wherein farmers in some areas have come to depend upon personal finance companies for their credit requirements. These companies as a rule charge from 2½ to 3½ per cent per month. Such a rate is unbearable, except in a transient emergency, and every effort should be made to provide and acquaint farmers with other sources where credit can be obtained at reasonable rates. Credit corporations in many instances could supply the required accommodation. Of course, in those cases where the borrower's condition is seriously involved, it is impossible to obtain credit from the usual channels. There are, however, undoubtedly a number of borrowers paying exorbitant rates who would be able to obtain advances from other sources.

As contrasted with a reduction in the use of credit, there are many farms and many areas for which an increased use of credit recommends itself. The use of additional financing may be approached from two general viewpoints. There is first, the possibility of using additional credit to attain a fairly prompt increase in net returns. Instances which may result in this objective are expenditures for fertilizer, for improved seed, for giving more efficient care to crops, or for increasing the volume of livestock feeding operations. In general, credit used for these purposes may be classified as expenditures which enable the farmer to use more efficiently his farming equipment or his labor time.

Approaching this problem of utilizing additional credit on the basis of increased net returns which may be anticipated over a longer period of time, the following projects frequently require financing that involves special credit problems:

1. Development or increasing livestock raising as a supplementary enterprise.
2. Changing the cropping program to build up the soil fertility (such as giving less dependence upon cash crops, more extensive utilization of legumes, etc.).
3. Improving the plant equipment to reduce loss from weather deterioration to crops or machinery, to effect more efficient utilization of feed supplies, and to give better shelter to livestock.
4. Application of special fertilizer, such as lime.
5. Expenditures for drainage or fencing.

Inasmuch as the annual returns from agricultural production in relation to the capitalized value of agricultural enterprises is relatively small, a narrow margin, at best, exists between earnings and fixed charges on farms carrying a fixed indebtedness. It is essential, therefore, that expenditures of the type just enumerated should be considered with care. In most cases such expenditures do not immediately yield an increased gross return sufficient to offset the annual charges, interest, and payments on principal, incurred in making such investments. If the individual farm already carries high fixed charges, it may not be to the best interest of the farmer to assume the additional indebtedness required to effect such readjustments in the farm organization. He is faced with the possibility that should farm returns fail to increase his annual fixed charges will be increased beyond his capacity to pay. The rate of interest and the rate of amortization of principal of advances, used for these particular purposes, are extremely important in making a decision as to whether such additional credit obligations should be assumed.

On the other hand, owners of farms which are not mortgaged or carry only a nominal indebtedness, may find that capital or semi-capital expenditures of the above type will be worthwhile in increasing the annual net returns of the farm enterprise over a longer period of time. The fact that costs of such improvements or changes have, in most cases, been substantially reduced by the lower price level recently reached, may be an additional factor in influencing such decisions.

It is, of course, impossible to discuss readjustments in the use of credit without giving consideration to the situation faced by

each individual farmer. In connection with recommendations for changes in farm organization or practice it is particularly important that broad programs should give recognition to the fact that the financial status of individual farmers varies to such an extent that special conditions must be given consideration. A suggested plan for a given region which may be the most profitable combination of farm operations over a period of years, may not recommend itself to the individual farmer dependent upon a relatively large proportion of credit to finance his current farming operations. Farmers who have but a small equity in their property must necessarily be concerned with the year to year changes in their financial status. In order to safeguard this nominal equity, it is probable that they must accept a lower rate of return upon their investment and labor time than would be the case if they had more ample resources, permitting them to assume the risks of year to year fluctuations in the yield and prices of a more profitable farming program.

This factor of risk in adopting a given farm program, as influenced by the credit status of the individual farmer, is not unlike the familiar comparison of stocks and bonds. If an individual is borrowing funds to purchase securities, past experience shows that he would average higher annual returns if he purchased selected stocks rather than bonds. On the other hand, if the borrower did not possess other assets for pledging as security when stock prices decline materially, his equity would be eliminated. With the lower yield on bonds less fluctuations in price are encountered and the borrower has materially better chances of safeguarding his equity. As applied to the use of credit in farming operations, it is clear that it is better to be assured of a nominal annual return, even at a reduced rate, than to attempt to adopt a farming program promising higher returns but which subjects the farm operator to substantial risks of losing his entire holdings.

In speaking of the possibilities of the use of additional credit, the assumption has been made that such credit facilities were available. Under present conditions we realize that this situation is by no means universally true. The failure of some 8,000 banks since 1920, the majority of which served agricultural areas, has greatly impaired credit facilities for agriculture. In many communities local facilities for obtaining credit are entirely absent. At the same time, existing banking institutions have materially altered loaning policies in view of their neces-

sity of maintaining more liquid assets to meet threatened deposit withdrawals. Many mortgage agencies have withdrawn from the loan field or materially reduced the volume of their operations. The past few years have witnessed a gradual reduction, by active agencies, in the amounts loaned per acre. The general situation may be summarized, therefore, as being far from satisfactory.

In appraising the advantages of any proposed plans for adjustments in credit institutions, it is well to give consideration, separately, to current conditions and to conditions which may exist in the future. Credit is of course based upon confidence. In turn, confidence involves some degree of certainty as to the risk involved, particularly the ability of the borrower to repay the sums advanced. Confidence on the part of lending agencies is materially lessened in periods of rapid economic change such as the present. The inability to appraise the probable future trend of events with any great degree of certainty makes it difficult to calculate the risk involved in making advances. As a consequence, there is a curtailment in the volume of credit usually available under more normal conditions.

To the extent that shortcomings in existing agricultural credit facilities are based upon this lack of confidence which characterizes a business depression, it is unwise to propose substantial readjustments in credit institutions. These transitory conditions are phenomena of the business cycle and if improvement is to be obtained, it is rather a problem of making readjustments in those factors which are responsible for the maladjustments in the general business situation. While agriculture is an important segment of the general economic organization, it is nevertheless directly influenced by conditions existing in other trades and other industries. Various proposals involving credit have been brought forward as a panacea for the farmer's current difficulties. Many of these overlook the probable transitory character of these disturbances and although their adoption might bring some temporary relief to the farmer, their ultimate effect would be merely to accumulate additional difficulties for the future.

However, when due allowance has been made in the credit situation for the unfavorable factors which may be attributed to transitory business conditions, there still remain many defects in our agricultural credit facilities which require readjustment. Credit has both its use and abuse. As Thomas Nixon Carver

stated in a pamphlet issued by the Department of Agriculture in 1914: "There is no magic about credit. It is a powerful agency for good in the hands of those who know how to use it. So is a buzz saw. They are equally dangerous in the hands of those who do not understand them." Undoubtedly, the ease with which credit was obtained prior to 1920 is responsible, in considerable measure, for the difficulties which farmers have experienced in the last decade. On the other hand, inability to obtain credit to effect needed readjustments in the farming program or to carry on the usual enterprises in the most efficient manner is a serious handicap to the profitableness of farming operations. There are indications that inadequate credit facilities in many areas are delaying or eliminating adjustments which should be effected to cope with present economic conditions. Of the readjustments in credit institutions, one of the most important problems is that of filling these gaps in local credit facilities which prevent farmers with adequate security from obtaining justifiable advances for making their farm operations more profitable.

Two main types of credit organization have been evolved to meet the production credit requirements of agriculture. The more important of the two is that form of organization which relies mainly upon the accumulation of local savings and current operating capital as a revolving fund from which to make advances to local borrowers. The unit country bank and the major European agricultural production credit systems are examples of this type of organization. In this country, however, the local organization has been operated as a private profit making institution in contrast to the cooperative features characterizing the agricultural credit systems of Germany and France. There are also differences in the liability assumed by the borrowers from these different institutions.

The second type of organization does not rely upon local accumulation of funds but obtains its funds from central money markets. As far as the local community is concerned, therefore, its functions are limited to those of a lending agency. The Federal Intermediate Credit System represents this second type of organization.

For readjustments in credit institutions, there are the possibilities of developing either type of credit organization. From many standpoints, it seems desirable that the adjustments should involve a combination of both types.

The soundly operated country bank has decided advantages

in caring for the credit requirements of an agricultural community. Its effectiveness as a credit institution, however, can frequently be increased by giving it a more direct and continuous contact with a source of outside funds. An agricultural credit corporation, using the rediscount privileges of the Federal intermediate credit banks and operating as the subsidiary of a well-managed country bank, provides just this sort of supplementary credit facilities.

If the facilities of the Federal intermediate credit banks are to be relied upon to supply a substantial proportion of the short and intermediate term credit requirement of agriculture, an important problem is encountered in the establishment of local agencies which will offer the individual farmer an opportunity to make application for this type of credit. In obtaining these local agencies the problem of providing competent management so as to carefully appraise loan applications and to service the loans is of paramount importance. Furthermore, if credit is to be made generally available to farmers from this source, it is necessary that full consideration be given to the economic costs involved in distributing credit to agricultural borrowers. Such economic costs must include the payment of salaries adequate to obtain competent credit administration as well as to compensate for the normal risks involved in financing any particular type of agricultural production. In this connection, the problem has been stated clearly by the Secretary of Agriculture in his recent annual report, as follows:

> Limitations on interest rates were authorized by Congress for the protection of farmer borrowers and to prevent exploitation of Federal intermediate bank credit by local credit institutions. The accomplishment in these directions, however, has been overshadowed by the failure of Federal intermediate bank credit to reach farmers in the volume needed. To a considerable extent this appears to be due to the fact that approved spreads have often failed to recognize local operating requirements. In such cases the rate limitations have obstructed the channels through which Federal intermediate bank credit might flow to farmers. A system of spreads, based on variations in local conditions and requirements, would appear to be more practicable than a uniform spread for all areas and types of loans.

In connection with the problems of credit institutions or practices involving long-term credit, there are also readjustments which may be of material benefit to agriculture. As a general rule, the farmer who utilizes credit extensively has not followed the policy of accumulating reserves in years of relatively favorable income. Instead, such years are frequently utilized in ex-

panding operations. As a consequence, economic periods such as the present are particularly difficult for farmers of this type.

It is possible that lending agencies could materially assist the farmers in bridging these unfavorable economic periods if loan contracts were adjusted so as to include a nominal additional payment each year for the accumulation of a reserve fund which could be drawn upon to meet annual interest and principal payments when conditions are unfavorable. If the annual interest and principal payment on a farm mortgage was 6 per cent, it would appear to be sound policy to require the farmer to pay an annual rate of 6½ or 7 per cent, the additional amount to be set aside in a special reserve fund. If the farmer did not find it necessary to draw upon this additional reserve fund, it could be applied upon the principal and thus more quickly amortize the payment of the loan. The privilege and practice of making more than one annual interest and principal payment in years of favorable returns with the option of using such additional payments to cover payments in unfavorable years, would likewise meet this same problem. While the adoption of these policies by lending agencies would involve additional accounting procedure, it is probable that the advantages accruing in the long run would more than compensate for this expense.

The advantages of a long-term amortized loan have been abundantly demonstrated during this recent period. The difficulty of obtaining renewals or the necessity of making burdensome payments on principal has not been encountered by those farmers who have adjusted their financing program so as to provide for the gradual amortization of the principal during the loan period.

The forced sale of large numbers of farms is bringing into existence a new group of farm owners. The problem of again transferring the ownership of these farms back into the hands of actual farm operators presents many credit problems. The development of a sales contract which will enable the purchaser to amortize the purchase price of the farm out of his current earnings requires a careful planning in farm management together with ample credit to adopt the most efficient program of farm operation. There is probably also a considerable opportunity for preventing the foreclosure of a large number of farms whose owners are having difficulty in meeting fixed payments. Some lending agencies are now following the plan of giving farmers of this type additional financing in order

to enable them to adopt more profitable farming combinations.

In conclusion, it must be emphasized that problems of farm management and efficient utilization of credit are closely interrelated. Adjustments in both must go hand in hand. The improvement of the credit status of the farmer requires that he be a good credit risk. This in turn calls for the adoption of a program of farm operations which increase his ability to repay such sums as he may borrow. With an improvement of his credit status, the opportunities of group action in obtaining credit at moderate rates and involving desirable maturities, is materially increased.

Much desirable emphasis has been placed upon efficient production technique and improved marketing facilities. Both of these objectives, however, are largely dependent upon adequate credit facilities for their effectiveness. The importance of wise credit use and a sound credit practice, however, should not be overlooked. If the financing of improvements in production and marketing are such that the results of these endeavors are swept away in years of unfavorable price or climatic conditions, the individual farmer, so affected, has gained nothing. If the economic and social welfare of the farmer is to be maintained and increased and a more stable agriculture is to be achieved, greater emphasis must be attached to credit use and practice as an important element in the successful functioning of the farm enterprise.

## Discussion by F. F. Hill

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The margin of profitable agriculture is continually shifting. During the war years, fair returns were made on many poor farms. During the agricultural depression which followed, farmers on many good farms have been unable to make enough to pay the interest on their mortgages in addition to operating and living expenses. With such rapidly changing conditions, it is easy to make mistakes in loaning money. Such mistakes are easy to see after the borrower has defaulted. It is not so easy to foresee difficulties in advance of making the loan.

The present agricultural depression has been unusually severe. Many really good farms have been acquired due to abnormally low prices for the principal product produced or to the fact that loans were made on the basis of highly inflated land values. Thirty-five cent wheat and five cent cotton are certain to result in the acquirement of many good wheat and cotton farms by lending agencies. When average farm land values over large areas decrease by nearly 50 per cent, there is certain to be a large amount of distressed real estate on the market. During a depression such as the present, past experience in making loans appears to count for little. It is difficult to tell good loan risks from poor ones. Loans made on what formerly appeared to be a sound basis result in defaults, foreclosures, and losses. It is little wonder that bankers become over-cautious, that credit becomes scarce, and that many

farmers who are entitled to credit are not able to obtain it. This latter condition is not entirely the fault of the banker. After all he is in the business of loaning other people's money. Unless he can make loans with reasonable assurance that both interest and principal will be repaid, he is bound to withdraw from the field under such circumstances. Unless we can point out to the banker the types of farm organization which are likely to prove the best risks, and the bases upon which reasonably safe loans can be made, we have little ground for criticizing his policies.

As Mr. Wall points out, one of the best ways of improving the credit status of the farmer is to make him a better credit risk. This is a problem in farm management research, farm credit research, and in farm management extension. Another way of improving the credit status of the farmer is to point out to the banker what are and what are not good credit risks. The poor loan risks in every community adversely affect the credit standing of all farmers in that community. Loans made on second-rate farms frequently result, particularly in periods of depression, in foreclosures and losses. As a result, credit facilities are largely withdrawn from all farmers in the community, even though many of them may be good risks. This could be avoided in large part if the means were at hand by which bankers could determine the relative risks involved in making loans on different farms. More farm management and farm credit research is needed. The results should be published in such form that they can be used by bankers. If means can be found whereby the credit status of the individual farmer can be improved through improved practices of farm management, and if some means can be devised whereby credit risks can be classified with at least a fair degree of accuracy, the problem of obtaining credit at reasonable interest rates and on favorable terms will solve itself to a large degree. It must be recognized at the outset, of course, that everyone is not entitled to credit. The problem is to separate the persons who are entitled to credit from those who are not. It must also be recognized that credit can be obtained on favorable terms only if the risk is small. This means that any scheme for providing cheap credit to farmers on extremely favorable terms must be based on making loans to better-than-average credit risks.

Mr. Wall pointed out that lending agencies could probably assist farmers in bridging unfavorable economic periods, "if loan contracts were adjusted so as to include a nominal additional payment each year for the accumulation of a reserve fund which could be drawn upon to meet accumulated interest and principal payments when conditions are unfavorable. If the annual interest and principal payment on a farm mortgage was 6 per cent, it would appear to be sound policy to require the farmer to pay an annual rate of 6½ or 7 per cent, the additional amount to be set aside in a special reserve fund. If the farmer did not find it necessary to draw upon this additional reserve fund, it could be applied upon the principal and thus more quickly amortize the payment of the loan."

To the writer's knowledge, at least one of the Federal land banks has adopted a plan somewhat similar to the above. Provision is made for the accumulation of advance payments of principal, which accumulated payments may be used in poor years. So far as the writer knows, little use has been made of this provision. It is admittedly upon a purely voluntary basis. However, if the bank were to require such payments to be made it would also have to decide under what conditions they could be used. This would doubtless involve considerable additional administrative expense which would be a serious matter in the case of a loaning institution operating on a narrow margin such as a Federal land bank. Presumably such accumulations could not be drawn upon except in case of grave emergency.

Mr. Wall points out that, "Efforts directed towards decreasing requirements for current financing will involve chiefly an increased utilization of the labor-time of the farm operator and his helpers in producing feed and food products which formerly were purchased. As a condition for obtaining advances from the emergency loan fund for the purchase of seed, feed and fertilizer, the Department of Agriculture has insisted that adequate provisions be made for the planting of feed and food crops. As a result of this policy, farmers in those areas where federal advances were obtained, will enter the 1932 crop production season with a reduced requirement for current financing. The opportunities for reducing credit requirements through the adoption of similar policies is especially applicable in the so-called one-crop regions."

In his statement that the above credit policy is "especially applicable in one-crop regions," Mr. Wall recognizes that there are definite limits to such a policy. While it may be a wise policy to grow a garden, keep a cow, and grow such feed crops as are needed for livestock in one-crop areas, it does not follow, for example, that eastern dairymen or poultry men should attempt to grow their own feed crops in an attempt to cut production costs during a period of agricultural depression. It may be a better policy to build up a higher producing flock or herd, and possibly increase the size of the herd, and in this way reduce the cost of production per unit of product, rather than to attempt to grow feed crops which can be produced more cheaply elsewhere. This is merely to say that judgment must be used in the curtailment of credit requirements through increasing the production of home-grown food and feed crops.

# THE HUMAN FACTOR FROM THE VIEWPOINT OF FARM MANAGEMENT[1]

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Farm proprietorship investigations were named as one phase of the research program when activities of the Division of Farm Management and Costs were planned on a regional basis in 1929. Subsequently, the Rural Sociologist and Agricultural Economists at the University of Minnesota indicated that they were interested in making a study of this kind and that they had contacts with a group of farmers who would be willing to cooperate in the investigation. An arrangement was made with the university, and a project entitled, "A Study of Certain Human Factors in Farm Management" was begun in 1930. Since the organization of the project, a number of agricultural economists have indicated that they had been thinking of a study of this kind for some time, but to my knowledge no definite project with these objectives had previously been undertaken. Interest in this phase of farm management has been a natural outgrowth of progress in the research field. Similar to any social science, farm management started with the most obvious and easily measured phenomena and gradually developed the technique for a solution of problems which were previously considered too intricate to undertake.

Alfred Marshall says, "Economics is a study of man in the ordinary business of life," and goes on to point out that it is a study of those traits or reactions in man which can be measured in money, i.e., dollars and cents. He developed his principles on a long-time or generalization basis, using the marginal unit as the differentiating factor. A little later, economists developed statistical technique to the point where they could put some flesh on the skeleton of economic analysis by using quantitative data and measuring not only the direction but also the amount of the reaction. Statisticians take into account the fact that individual actions may not be in accord with the general group action. In fact, they measure the sum total of the individual reactions and thus arrive at the total or group action. The next step, and the one which we now find ourselves taking, is that of investigating

[1] This paper was read at the joint luncheon of the American Farm Economic Association and the Rural Sociology section of the American Sociological Society held at Washington, D.C., Dec. 28, 1931.

the causes for individual reactions, whether in accordance with or divergent from the action of the group as a whole.

Factors affecting the net income of the operator have claimed most of the attention in farm management research for a number of years. The repetition of projects of this type in every part of the United States has focused attention on the guiding factor of farm production, the entrepreneur. Most of the variations in income have been explained in terms of technical efficiency of production and marketing, but there still remains the question of what causes the remaining differences as yet statistically unexplained and why the variations in technical efficiency? In every study of this nature the incomes, when arrayed, tend to follow an ogive curve. Technical efficiency is the major explanation of this variation in incomes, but interest in the human factor is a result of an effort to go deeper than this and to determine why technical efficiency varies. A complete explanation is needed for the existence of these differences in incomes and, to the extent measurable technical performance fails to account for the variations, the answer may perhaps be found in the human factor.

All the factors which influence net farm income may be classified under four general headings: First, there are differences in the farms or natural productive capacity of the agents used. No two farms are identical. Some are slightly more productive by nature than others. Some are distinctly more productive. These differences influence the results noted in every case, and only to a certain limited extent are they under the control of the farm operator. Second, uncontrollable factors, such as wind, hail, rainfall, and other "acts of God," affect individual farms in different ways. Third, there are marketing factors and price relationships, such as the recent decline in all agricultural prices, over which the individual farm operator has no appreciable control.

The fourth general field is that in which the operator and his family are responsible. Differences which cannot be traced to the three headings mentioned above are due to the variations in significant personal characteristics of farm operators. A careful consideration of the type of differences which are most outstanding in farm management analyses emphasizes the importance of the entrepreneural functions. In the various measures of achievement such as pork produced per sow, beef produced per 100 pounds of feed, or butterfat production per cow, we must look principally to the entrepreneur for the causation of the variations observed. The same thing is true if an inquiry is made into the

variation in prices which the different farmers in a given community receive during a period of time. In the study of most farm management problems the effect of factors falling under the first three headings has been measured or held constant in so far as possible, while the principal attention has been focused on the objective results of variations in entrepreneural performance.

### *Ultimate Objectives*

The pioneering study which was started in Minnesota in 1930 was continued this year, and a similar one was initiated in cooperation with the Purdue Agricultural Experiment Station in Indiana. The psychologists at both universities cooperated to the fullest extent, and with the combined efforts of the men in the three fields, agricultural economics, rural sociology and psychology, some interesting experimental methods were tried. Before going into the details of the research methodology, however, let us get quite definitely in mind the ultimate goal or objectives of this field of research. What are the differentiations which set it off from other research which has been in progress for a number of years?

The farm operator affects the success of his business by two means: first by the ability with which he discharges his entrepreneural functions, and second by his manual dexterity or the skill with which he performs his labor. It is generally recognized that of these two functions much greater importance attaches to variations in the former, because of its greater responsibility in determining farm income. For this reason, to put it briefly, in a study of the human factor in farm management, interest is centered on the entrepreneural function.

The first objective listed in the cooperative agreement with Minnesota was to determine the relative importance of variations in the capacity of farmers as business organizers and managers, as compared with other factors associated with profits and losses in farming. The second was to determine the relative importance in effective business administration of the farm of certain factors which may affect management such as education, native intelligence, habits of using market information, outlook reports, and the like. The third objective was to determine the relative importance of various human traits such as industry, interests in various farm processes, diversity of attention, family life, etc., as they affect success or failure in the proprietory function.

The Indiana study was for the most part a duplication of this one, with some refinements of methods. For this reason essentially the same objectives appear. After this period of study very little modification of these objectives seems desirable. The first one stated, the determination of the relative importance of variations in the capacity of farmers as entrepreneurs as compared with variations in other factors, seems a bit confusing. If the factors affecting net farm income are thought of under the four headings outlined in the preceding paragraphs, a brief survey of farm management projects indicates that interest is centered on the factors under the last heading. Variations in the entrepreneural capacity of farmers could only be compared with variations in uncontrollable factors. All others are at least partially a result of characteristics of the farm operator.

The farm operator functions as an entrepreneur through two fundamental channels. First, by the exercising of his judgment-forming capacity, through the medium of the decisions he makes regarding what to produce, how to produce, and when, where, and how to market the products, he lays out the farm plans both from a long-time and a short-time point of view. Second, by the functioning of his will power or his dynamic energy he determines how completely or with what degree of promptness these decisions are put into effect. Since farm management is essentially interested in the private economy of agricultural production it is also, and for the same reasons, interested in these two fundamental sources of the guiding and stimulating forces in agricultural production.

Having this general approach in mind, the specific objectives of research in proprietorship, factors affecting entrepreneural ability, or the human factor in farm management might be stated in this way:

1. To learn how each farm operator differs from the others in his "make-up" or personal attributes and experiences causing him to function differently as an entrepreneur.
2. To discover the different characteristics and influences which make for good or bad entrepreneural performance.
3. To measure, in so far as possible, the extent of the influence of the various factors as they are expressed by differences in farm business accomplishment.

### *Some Experimental Methods*

Returning to what was, after all, the practical approach made toward the solution of this intangible problem a brief history of

the development of the project in Minnesota seems advisable. After a number of conferences of all active workers, and others interested in the project, the problem seemed to crystalize into something like this: With what did this man begin life as compared to his competitors? What were the influences throughout life that caused this man to be what he is today? What was the relative effect of these different influences? What is the makeup of this man today that causes him to function as he does in the capacity of an entrepreneur?

In trying to devise means for getting information that would answer these four questions, relatively little in the way of a precedent was available. The project as outlined called for the investigation of the factors affecting the entrepreneurship of certain men on which financial and efficiency measures of farm business accomplishments were already available. This was thought expedient in view of the availability of such data on men in the state. It was obviously impossible to determine the native ability of mature men. Under these circumstances a measure of the general intelligence of the men at the present time would be the logical second choice. A survey of psychological studies revealed the fact that there was no reliable way of measuring an adult farmer's general intelligence. It was suggested, however, that a number of agricultural questions of the multiple choice type be combined into a trade test. Accordingly, a list of 50 questions was prepared covering the agricultural problems familiar to the farmers. The psychologists pointed out that the results of such trade tests correlate highly with those of standardized intelligence tests. This past summer one of these standardized tests was given to a small number of farmers. The results emphasized the marked superiority of the trade test as an indication of those personal attributes usually thought of as general intelligence or mental ability.

Another indication of differences along this line seemed worth investigating. This was the rate of the children's progress through school. According to the Mendelian law of inheritance, characteristics of parents tend to be inherited by their children. Granting that in general, rate of progress through school is the result of the child's ability, the index ratio of the children's progress through school is an indication of the parents' possession of like abilities. Although the results have not been determined for the Indiana study, there was a fair degree of association between an index of the children's progress through school and the operator's labor earnings in the Minnesota study.

In trying to answer the second question concerning the influences throughout life, a personal history schedule was prepared. In it were included questions which would throw light on the important differences in family, social, and economic influences as well as indications of certain personal characteristics of the farm operator. This schedule of information, together with the trade test, was obtained from the farmers in a personal interview. The third question, dealing with the relative effect of these influences, is, for the most part, a statistical problem that has not been solved. The fourth question, concerning the man's make-up today, is fully as difficult as the first. It is possible by means of questions to locate differences in ambitions, desires, likes and dislikes, interests, etc., but to measure and describe some characteristics in terms other than that of performance ascribed to the characteristic is beyond the scope of psychological measurement at the present time. For example, how can the possession of that faculty or ability to make wise decisions be measured except to measure the results of the decisions? One of the leading psychologists feels that it will be entirely possible in the near future to devise a test for this phase of the measurement of the elements of entrepreneurship.

Lacking a better means of measuring the possession of some of these characteristics, the farmers in the Minnesota study were rated independently by another interested party and the author with respect to factors thought to be important in conditioning farm income. Scores on some characteristics correlated rather well with earnings. In the Indiana study, however, questions were asked on points which made possible a grading or scoring of the answers. This provided for an objective measurement of some of these characteristics and the preliminary results indicates a marked improvement over the former method.

### *Preliminary Results*

Some of the factual results of these studies may be of interest although thus far the determination of all possible approaches to the problem has been the major objective. Interesting relationships between factors affecting the farm operator and his earnings were found in a number of cases. Time does not permit the discussion of all these relationships but those which, grouped together, give indications of certain tendencies will be mentioned.

The influence of the operator's wife was apparently one of the important factors causing variations in earnings. It is prob-

able that she influenced the success with which the farm business was carried on not only through her psychological effect on the farm operator, but in many cases because she actually discharged some of the entrepreneural functions.

In addition to this, the data seem to point to variations in three stimulating influences, or factors of motivation, and one of ability, which are directly reflected in the earnings or business success of the farmer. The factors of motivation are, "Interest," "Need," and "Ambition or Will." Knowledge, the factor of ability, is in part at least conditioned by the factors of motivation. In considering the data to see how the variations in earnings are associated with variations in these factors, a clear concept of the meaning of the terms is necessary.

Several specific relationships indicate the importance of variations in the interest factor. When the reasons for undertaking to farm were classified on the basis of the degree of interest or liking for the vocation, a positive relationship with earnings was apparent. There was also a positive relation between the size and efficiency of the different farm enterprises and the operator's interest or liking for the enterprise. The scores of the men on this characteristic were also positively correlated with earnings.

It will be necessary to clarify somewhat the concept of "need." The motive generally regarded as largely explaining why an individual undertakes economic enterprises is the desire for personal gain or betterment of his economic position. This is usually assumed to include the desire to provide for all economic contingencies and the building up of an estate, as well as the provision for current needs. This use of the word "need" may be thought of as describing the relation of the individual's economic accumulations to his probable personal and family requirements.

Definitely lower earnings were made by those who inherited or who were quite sure to inherit a large part of their farm property. It would seem that these operators did not feel the need for further economic accumulations as greatly as those not inheriting any property. Tenants, especially in Indiana, made considerably higher average earnings than the owner operators. This agrees with results of numerous farm business studies. The older men who had mature children and an accumulation of property did not make as high average earnings as the younger men. In every case where there was a difference in the evident "need" between two groups, looking at it from the long-time point of

view, the group having the greatest "need" also had the highest earnings. It does not necessarily follow that the largest families, living under the poorest conditions, are making the highest earnings, for in these cases other things such as a low standard of living or lack of ability are usually the contributing factors.

Ambition is usually manifested by the energy the individual puts forth in making, to his knowledge, the best possible use of every opportunity. A person showing unusual energy in his work, especially in doing things which are often neglected by other people, not because they are not recognized as economically beneficial, but because the doing of them would cause personal exertion in excess of what they expect to get in return, is usually thought of as possessing or exercising superior will power.

Accumulation of economic goods is not the only desire and ambition of farm operators. Some of them knowingly sacrifice pecuniary gains to attain certain other objectives. Answers to the questions asked in these studies indicate that most men on small farms do not want the responsibility, or do not want to sacrifice the privacy and independence of family life for the added money income which they might get by operating a larger farm. The home is so closely associated with the business in farming that probably agriculture is influenced more by non-economic motives than is any other industry.

As pointed out earlier, good judgment and wise decisions are the foundation of any manager's success. These in turn are founded on native ability and acquired knowledge. This possession of facts and understanding which is required to answer a high percentage of the questions on the trade test is also necessary as a basis for good judgment and intelligent decisions. There was a significant positive relation between the scores on the trade test and the earnings of the farm business in both studies.

As mentioned before, these general findings have been given merely to indicate the type of results obtained from our pioneering efforts, rather than the final conclusions from a careful analysis of thousands of cases of entrepreneural achievement.

Those teaching agricultural subjects under the provisions of the Smith-Hughes act are especially anxious to obtain data of this nature to supplement their fields of study in technical production. Efficient agricultural production is a result not only of technical knowledge but of its use through the medium of a

capable entrepreneur. Young boys have a greater opportunity to benefit from the findings of such studies than do adult farmers.

The end product of research and extension in agricultural economics and rural sociology is to obtain an understanding of, and a better adjustment to, the various economic and social forces on the part of the individual and thus of society. The research men supply the facts and the extension men carry them back to the farmer. Much of the work of extension specialists in these fields is concerned with showing the individual farmer the adjustments he can make which will increase his net farm income.

Many of these economic and social maladjustments are the result of factors other than lack of information regarding the specific relationship. For example, few farm operators can overcome a personal dislike for certain farm tasks to the extent that it does not influence their performance of these tasks and hence the farm income. Because of individual preferences, it may be better for the farm proprietor to direct his efforts toward further improvement of certain phases of his business, in which he already shows a good measure of efficiency, rather than to attempt the improvement of another enterprise admittedly being conducted less efficiently.

The effectiveness of both the research and extension men's efforts may be definitely improved when they have a better understanding of the nature and the results of the human factors affecting the farm families' economic accomplishments. Extension work may be aimed at some of the major sources rather than at correcting the results of maladjustments when qualitative and quantitative information of this type is made available and used.

# THE HUMAN FACTOR FROM THE VIEWPOINT OF SOCIAL RELATIONS[1]

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The farm family is closely connected with the farm business—with agriculture as an industry. In contrast to this, under our factory system, the laborer's family is more or less completely disassociated from the factory. Economists ordinarily classify the factors of production as land (or natural resources), labor, capital, and management. But on the typical American farmstead these would appear to be land, family, and capital; for the operator-manager is also as a rule one of the laborers, and much of the additional farm labor is furnished by other members of the family or by hired hands living within the same household. Furthermore, on that large number of owner-operated farms, the operator is also the owner of all or a considerable part of the capital required.

In presenting the sociologists' viewpoint, it is my purpose to avoid as much as possible those parts of the field where we still rely almost entirely upon theories and confine myself chiefly to some trends and relationships that seem to be indicated in the results of several recent research projects. It is recognized that many of the statements which follow apply with certainty only to the areas and persons included in these surveys, and that more research is necessary to determine their applicability to different situations. This paper thus becomes also, an invitation to research workers to inaugurate such projects under environments different from those already studied. The material will be presented under three general classifications.

## *Rural Standards of Living*[2]

For the purposes of this section of the report, the standard of living may be defined as the cash outlay for family living to which is added an allowance representing the rental value of the house and the farm value of food and fuel furnished to the family by the farm, with an adjustment in the cost of the automobile as between farm business and family uses.

[1] This paper was read at the joint luncheon of the Section on Rural Sociology of the American Sociological Society and the American Farm Economic Association, held at Washington, D.C., Dec. 28, 1931.

[2] I am indebted to Prof. J. H. Kolb and Prof. E. L. Kirkpatrick, of the University of Wisconsin, for most of the material upon which this section of the paper is based, and for their suggestions given during its preparation.

Recent refinements of method, the obtaining of additional data on consumption activities of the farm family, and the conducting of combined standard-of-living and farm income and expenditure studies are bringing to light some very significant results as related to the human factor in agriculture.

In a new Wisconsin study, localities for sampling were selected upon the basis of type of farming as determined by farm management analyses. This was done in the expectation of discerning significant differences in standards of living as for example between a dairy area and a more recently settled cut-over area. The results seem to indicate, however, that variations between family units within each sample area are decidedly greater than are differences between average standards of living for the several areas that were studied. Furthermore, within these type-of-farming areas were found several localities having very distinct consumption-behavior patterns. Some of these were carried over into farm-management patterns; others did not seem to be translated into the production side of the picture.

In this same Wisconsin study, the standard of living appears to be not significantly related to net farm income. Even when the latter was made to include what the farm furnished to the family, the relationship remained small. Some of the families lived beyond their incomes for the year under study, making up the deficits from past savings, borrowings, etc. Of course, without other sources of income, no family can continue this indefinitely. On the other hand, it seems that a large net cash income is not necessarily used in maintaining an expanded living standard.

There seems to be no relationship between ages of farmer and homemaker and the standard of living. Size of family or household, on the other hand, is fairly closely related to the standard of living according to this study. A given family apparently passes through various stages or cycles of development in its standard of living, based upon its size and the age and sex of the dependents.

As observed by several research workers, there appears to be some tendency for the number of biologically incomplete farm family units to increase. This tendency is one of long standing in urban areas. Yet on farms a surprisingly large number of families containing only one parent in the group, families made up of brothers and sisters living together, and in a lesser number of instances, one-person families, are being encountered by house-to-house research workers. Most standard-of-living studies

have omitted these instances as being not typical. The same is true of many farm management studies. Yet such cases are sufficiently numerous to merit our attention. They introduce some unusual problems for both sociologists and economists.

### *Rural Organizations*

The behavior of farm people toward organizations is especially significant in these times when so much is being spoken and written about the necessity of an organized agriculture as a more effective way of meeting organized business. The responses of farmers to organizations, whether the purposes be for business, recreation, education, community improvement, or religion, are sociological phenomena. Recent studies in this field are producing some interesting tentative conclusions. I can but outline these in passing.

1. Organizational behavior is more closely associated with educational, cultural, ethnic, and social-experience backgrounds than with such economic factors as size of farm, gross farm income, or length of farm experiences.

2. According to the opinions of many local people, a combination of factors that go to make up what would in common parlance be called a progressive farmer, including a vital interest in all matters for the benefit of the local community as well as the use of modern methods of farming, is much more characteristic of people who are members of farmer organizations than of those who do not belong.

3. A complex of factors that may be called "organization-mindedness" seems to be a more important force in causing farmers to join and remain satisfied members of economic or business organizations than do prospects of large or immediate financial gains or other economic advantages. This does not mean that all cooperative ventures are economically unsound. In the past four years, I have interviewed personally a great many farmers, asking them all sorts of questions about their organization experiences. I am fully convinced that a very considerable proportion of these count freedom to "shop around just as they please" in buying and selling as being a far greater advantage than any increased financial returns from buying or selling cooperatively. Many admitted this in unmistakable language. In other words, sociological and psychological factors seem to condition behavior relative to farmers' organizations quite as much as do economic factors. Where all of these combine their influ-

ence either for or against a given organization, the result is much more pronounced in the individual's behavior than when some sets of factors pull toward and others away from this organization.

4. The degree of organization-mindedness of both farmer and homemaker and sometimes of their children, helps to determine the behavior of the farmer himself toward purely business organizations. In some farm homes that I have visited, the wife's wishes dominate over those of her husband in this matter. And it is my candid opinion that the homemakers are usually more open-minded and less emotionally biased in making decisions on this subject than are many farmers.

5. Farm people generally expect their own organizations to effect a closer approach to infallibility than they do of private enterprises. This demand is an important cause of dissatisfaction among members of many cooperatives.

6. Local meetings, held quite frequently, appear to be the most satisfactory means of spreading accurate information, of giving opportunity for frank questions and discussions, and of building membership morale for farmers' organizations, both of the federated and centralized types. No equally effective substitutes were found in any of the membership relations surveys that I have conducted. Here seems to be an important sociological principle that has been disregarded frequently, sometimes with disastrous results.

7. High pressure membership campaigns are usually followed by much grumbling and dissatisfaction on the part of farmers who feel they were over-sold on the proposition. The final result of such campaigns more often than not, has been harmful to the organization.

8. A majority of farm families are not at present imbued with a very strong sense of their social and economic relationships to other farm families and to other people or groups. Outside of elemental mutual aid to unfortunate farmer neighbors, only a minority of farm families recognize definite obligations to farmers as an occupational group or to their industry as a whole. This situation crops out not only with regard to farmers' cooperative organizations but in relation to acreage adjustments of which I will say more later.

9. The disciplines of behavior both in thought processes and overt acts that are essential to successful cooperation for all types of organized effort seem to be acquired most effectively

through that well-known educational device of learning by doing. This again points to the value of active local groups as a means of giving more opportunity for direct participation on the part of as many members as possible.

A considerable number of these problems of membership relations are doubtless due to the persistence of long-established habits of thought and action acquired under the traditional systems of marketing and merchandizing. The behavior demanded by cooperative effort runs counter to many of these older habits. When many more farmers have become habituated to a cooperative régime as thoroughly as most of them seem to be to the private system, "organization-mindedness" will become as firmly fixed in the realm of habit as complete freedom in buying and selling ever was.

The human factor, in its social relations thus plays a very important part in the whole question of farmers' organizations.

### *Mobility and Composition of the Farm Population*

Non-economic forces and influences play no inconsiderable rôle in determining movements of population to and from farms. Thus, of 1,094 farmers who were former residents of towns, cities, and villages, 82.6 per cent said that they preferred farm work to city work as an occupation.[3] Among the 1,706 reasons given by 1,167 persons for going to the farm from non-farming occupations, not over 25 per cent stressed purely economic considerations. The most prominent single reply, comprising more than 25 per cent of the total, was to the effect that a farm was a healthier and otherwise more desirable environment for the family.

Economic considerations seem to play a larger part in the reasons given by ex-farmers who have left the farm for the city, town, or village. High taxes or low prices for farm products account for 37.8 per cent of their reasons. Physical disabilities and the desire to retire from active work included 27.7 per cent. The desire for better school facilities, and a great variety of scattering reasons account for the rest. Even here, however, factors of a non-economic character bulk quite large.

The migration of young folks from the farm is in part a result of economic and in part a result of social conditions. The inability of agriculture to absorb farm children within the industry, the

[3] C. J. Galpin, *Analysis of Migration of Population to and from Farms*, United States Department of Agriculture, Bureau of Agricultural Economics, mimeograph release.

lure of what were sometimes only apparent high wages in the city, and the desire to pursue vocations other than farming because of low returns to agriculture are the chief economic factors. The attractiveness of city life, the pull of the crowds, and other manifestations of urbanization are much more sociological in nature but nevertheless very appealing forces.

During the year 1930, for the first time in a good many years, there was a net increase in population living on farms.[4] It is probable that the year 1931 will show another increase. Certainly the depressed price situation, coupled with continued high farm taxes and interest rates are not responsible for this movement; admittedly much of it is caused by urban unemployment. Most of it represents an attempt to secure food and shelter at lowest possible cost to tide over the crisis.

But coming out of this same depression one sees and hears many suggestions for decentralizing industry in rural areas thereby providing factory workers with an opportunity to raise a considerable part of their needed foods and to give some of the advantages of farm life to the children. Likewise, there is a definite movement away from extreme specialization of cash crops in farm production plans toward greater self-sufficiency on the individual farmstead especially in feed, food, and fuel production. In other words, here is a step in the direction of viewing farming as a way of life, a means of working out a standard of living more nearly upon the basis of what an individual family-size farm unit can provide directly for want satisfaction. It recognizes the fact that in view of the ups and downs of the existing economic order, a combined socio-economic basis for agricultural production can provide the best buffer or shock absorber. Possibly at some future day when economists succeed in establishing a really effective means of avoiding the ills of violent inflation and deflation, farming may be able to organize itself along the same economic lines as other more highly specialized industries. Until such a time arrives, however, the socio-economic basis of organization for the farming industry in which a family-unit farm is operated first to meet its own consumption needs to a considerable extent and second for the cash market outlets, appears to be the safest policy to pursue in a very large part of rural America. And in this same connection, the time seems to have arrived when we need to think through the whole question of

[4] *Annual Estimates of Changes in Total Farm Population*, prepared by the Division of Farm Population and Rural Life, Bureau of Agricultural Economics, United States Department of Agriculture.

what are the basic values of farm life that should be conserved and encouraged, as well as seeking to determine effective production, marketing, and taxation policies. Such a revaluation followed by a popularization of the findings is basic to the future welfare of farm people and their industry.

### *Farm Production Policies*

We do not ordinarily associate farm production policies with sociology, yet I believe that in certain of these policies there are important though often unrecognized sociological implications. In this part of my paper, most of my statements are based upon the results of a research project started in the spring of 1931, the results of which are not yet available in published form.

The survey to which I refer was conducted in representative cotton-producing counties of the Mississippi Delta, the Piedmont, and the South Atlantic Coastal Plains regions. A total of 834 farmers were interviewed personally, all of them having the authority to decide upon the acreages that they planted to various crops. The purpose of the survey was to determine the general types of reasons given by cotton producers for making changes in acreages planted to cotton or other major cash crops; to note the extent to which these farmers received and utilized the so-called agricultural outlook information prepared by the state and federal departments or colleges of agriculture; and to obtain certain sociological and economic data to be used as classification bases for replies to the other questions. Upon completing an interview with a farmer, the enumerator prepared a special report answering several questions about this farmer and his replies to the questions that were given to him.

A suggestion, either direct or implied, to the effect that the acreage planted to any crop should be reduced, involves any of four things to become effective, namely: (1) That economic forces themselves rather than the suggestion itself will cause a restriction of acreage by bringing about a reduction in the number of farmers or acres farmed, (2) that legislation requiring a reduced acreage will be passed and enforced, (3) that alternative plans of crop production can be placed before the farmers so appealingly that the farmers in large numbers will change over in line with these suggestions, and (4) that farmers will recognize their obligation to each other and to their industry with such clarity as will cause them to reduce the acreages they plant to such crops. The two last-mentioned means have been most

generally used or assumed in appeals for acreage adjustments of certain of our major cash crops. The basis of one is largely economic, the other sociological.

The aforementioned survey of cotton-belt farmers sheds some light upon these various means of acreage adjustment. Farmers who were members of the cooperative cotton-marketing associations made significantly greater reductions in acreage planted to cotton in both the 1930 and 1931 crop years than did non-members. The farmers with more schooling also made heavier reductions than did those with little schooling. The reasons for acreage reductions given by the above members and the better educated farmers likewise indicated a larger conception of group responsibility. On the other hand, in two Mississippi Delta counties credit agencies tried to force a reduction in cotton acreage in the spring of 1931 by demanding that borrowers plant at least one-third of their crop land in feed-stuffs. Several interviewed farmers who had borrowed under this plan boasted proudly that they had been able to "out-smart" their creditors by either renting extra land to plant to feeds or by clearing up and planting new ground in feed stuffs with no reduction and in a few instances actual increases in cotton acreages. Here we have a complete failure to recognize social obligations.

The urge to increase acreages of food and feed crops had telling effect in 1931 upon the cotton acreages of all the regions surveyed. For the Mississippi Delta, the average amount of cotton per planter reporting decreased 50 acres while the acreage in feed crops increased by 107 acres. For the Piedmont region where the change was least marked, cotton was reduced an average of six acres per farmer reporting and feedstuffs increased nine acres. Even here, however, social influences entered the picture to some extent for a few farmers, especially the larger planters, seemed to fear some loss of local social prestige by reorganizing their farms on a more nearly self-sufficing basis!

Quite a number of the cotton planters who were interviewed stated that they were unable to reduce their cotton acreages because of unwillingness to turn their hands or share-croppers off the place. Despite the social distance created by race differences on these plantations, man after man said that he knew he would lose money by keeping his croppers on the place in 1931 so as to let them grow cotton but that he felt he had to do so because many of these hands had worked for him for many years and were totally dependent upon him for a livelihood.

Few leaders in manufacturing or other industries have ever recognized such social responsibilities. Here and there, on the other hand, was found a plantation owner who had gone over to tractor farming and had discharged two-thirds to three-fourths of the former cropper families. These men estimated that they could reduce production costs two to four cents per pound by this change. They were motivated solely by economic considerations. Their 1931 production plans involved actual increases in cotton acreages for the most part. I simply raise the question: suppose all farmers of the United States were to adopt an equally rigid individualistic interpretation of economic principles as applied to their farms; would this country as a whole, the farmers, or the agricultural industry be any better off? I doubt it very seriously.

As far as the outlook work is concerned, the better schooled farmers seemed to be more favorably inclined toward it and to be adapting it to their production programs more fully than do farmers with limited schooling. Members of cooperative cotton-marketing associations respond much the same as the better-schooled farmers—in fact, there is much overlapping in these two groups.

The chief complaints against the outlook work come from the idea that these reports are so interpreted by many individualistically inclined farmers who do the opposite of what the reports imply, hoping that enough other farmers will follow the facts in these reports, so as to put the individualists in a more favorable position to make money. Thus, according to these complaints, so many individualists reverse the normal interpretation of the outlook reports that the net result hurts instead of helps the farmers. Again you will note the sociological basis of this situation and the question that it raises with regard to methods of preparing and disseminating information among farmers.

In conclusion, instead of giving a summary of what has been stated, I want to make something of an appeal to both economists and sociologists. I believe that most of us have reached the point in our thinking where we do not feel belittled when someone tells us that our own specialized interest in these fields does not include all of the factors which motivate conduct or determine attitudes; or that the well being of agriculture or of society at large rests solely in our hands. Most agricultural research in the past has been centered upon a wide assortment of problems included chiefly within the land or natural resource and capital factors of production. More recently, we have made marked progress in

studying the management factor as related to the production side of the picture. Only a few broader studies of the human element in agriculture have been completed up to date. What I want to urge, therefore, is a new set of research projects focusing directly upon the human factor, not upon something else. This is for the purpose of determining the relationships of the human factor to the other elements in the situation. To be most effective, such research projects will involve the cooperation of workers in many different divisions of social science and also of workers in some of the natural sciences as well. Time limitations prevent me from outlining any specific research projects in this connection. These can be worked out by smaller groups once the general purpose is understood. A few projects of this type are now under way, but some of these do not go as far as they might in trying to round out the complex picture of human relationships.

Especially do we need more studies of the way in which farm people react to the various situations and problems that confront them. Responses to methods used in adult education, to different techniques of organization and field-service activities, and to social and economic changes that suggest or sometimes practically force readjustments in farm business practices are cases in point. On the basis of such coordinated research, each of us in his own field will be better fitted to pursue further studies or to develop policies looking toward the advancement of the agricultural industry and the enrichment of farm life.

# AGRICULTURAL CREDIT AND THE ECONOMIC ORGANIZATION[1]

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A proper perspective in research and teaching in the field of agricultural credit requires a clear conception of the interrelationships between general monetary policies, speculative activity, industrial output, etc., and the problems of the farmer. In order to trace these interrelationships, it is well to approach them from the standpoint of the supply of credit available to the farmer, giving consideration at the same time to the demand that is exerted therefor.

The credit requirements of the farmer are usually classified as being of *short, intermediate,* or *long* term. In actual practice, the second of these is difficult to distinguish, and the classification that proves most workable is between: (1) Production Credit, with which is usually associated a short-term maturity, and (2) Capital or Mortgage Credit, which is associated with a long-term maturity. This latter classification will be employed in the following discussion, although some reference will also be made to the intermediate type. The latter type represents a form of semi-capital credit, inasmuch as it is utilized in financing operations which do not usually result in a liquidation of the advances within the period which characterizes production loans. Advances of this character are frequently made on the basis of short-term maturities and renewed. Hence the period for which the loan is made does not afford an adequate indication of the intermediate character of the advance. Frequently, too, loans made for production purposes develop as a result of unfavorable conditions into an advance which is intermediate in character.

## *Production Credit*

In considering the first classification, production credit, it may be said that the supply necessary to meet such requirements is furnished largely or entirely by the farmers themselves. Through the agency of the local country bank, the current funds required for the operations of the various individuals are pooled to form a revolving fund from which credit is extended to those

[1] This article was originally prepared as a part of the introductory section of the Social Science Research Council's bulletin on *Research in Agricultural Credit, Scope, and Method.* It was felt to be of sufficient general interest, however, to warrant its publication in the JOURNAL OF FARM ECONOMICS, where it would reach a less specialized audience and yet would be available to those using the research bulletin. ED.

borrowers in the community who can meet the established loan requirements. In addition to this accumulation of current operating funds, the revolving loan fund comprises the savings of the community which have been placed in the bank in the form of time deposits or as savings accounts, and also the funds which are contributed by the individual stockholders in the form of their capital stock investment. In practically every established community, the population may be classified according to a graduated scale of wealth; some are working for a wage; many are tenants; a large proportion own their farms but carry a relatively high indebtedness; others own their farms free of debt; and a few others have accumulated savings, including those who have retired from active farming operations. The deposits which are contributed by each of the foregoing groups supply a fund which tends to equalize the loan requirements of the community.

This loan fund is, of course, less adequate in meeting local credit requirements in the newer agricultural sections and in those areas where the agricultural program has not been conducted on a sound economic basis; that is, a given plan of crop production has been employed irrespective of the fact that its continuation has failed to result in any material improvement in the economic status of the producers. In principle, the operation of this local loan fund is not greatly different from that employed in the familiar credit associations of Europe, the Raiffeisen Association, perhaps, being the outstanding example. It represents an amalgamation of the current funds and savings of a large group of individuals into a fund from which temporary loans may be made for productive purposes. Unlike the Raiffeisen, however, the local loan fund is not a mutual organization, but is operated for profit by private shareholders.

The adequacy of the country bank in meeting the local requirements for production credit is dependent upon three main factors:

1. The type of the farming program.
2. The loan policy of the bank.
3. The status of the community's economic development.

The influence of the type-of-farming program upon the supply of credit for production purposes arises through its effect upon the relative movement of funds into and out of the community. Where the system of farm production involves a specialization upon one particular crop with a flow of income into

the community concentrated at a single period of the year, the marketing season, the supply of credit available for the local community will tend to be the least adequate for normal requirements. This is explained by the fact, that aside from a short period following the harvesting season, the net movement of funds will be away from the community as the crop income is disbursed for payments of supplies, machinery, interest, etc. While the bank may receive a relatively large volume of funds at the marketing season, it cannot at that time increase its local loans in anywhere near a comparable amount, since it must be in a position to meet the withdrawal of funds which will arise during the subsequent year as a result of the excess flow of out-of-community payments over receipts. It must therefore utilize a large portion of the annual crop income which has been received as deposits in the purchase of readily available assets outside of the community such as commercial paper, call loans and bonds, or as increased balances with correspondents.

On the other hand, when the farming program is more diversified and farm income is received at more frequent intervals, the flow of income into the community tends to be more nearly in balance with those payments which must be made elsewhere. Loan requirements, likewise, will be spread more evenly over the year. As a result of this closer equilibrium between current receipts and outside disbursements, it is not necessary to hold so large a portion of the local fund invested outside of the community in order to meet large seasonal withdrawals of deposits; consequently, a larger proportion of the community's annual income can be made available for local advances.

It is probably true, also, that a more evenly distributed flow of income and disbursements tends toward greater thrift and hence has the effect of bringing about a relatively greater increase in the community's accumulated savings. Where the agricultural income is concentrated at a single period of the year, involving greater risk in fluctuations due to price changes and climatic conditions, unusually favorable farm returns are frequently regarded in the light of fortuitous gains and are unwisely spent.

The second factor influencing the supply of credit for production purposes is the loan policy of the banking institutions in the community. Reference has been made to the fact that the loanable funds of a community represent a revolving fund made up of the combined deposits of the community. By virtue of its re-

volving character, the amount of new loans which can be granted in any period is largely dependent upon the liquidation of prior advances. Where the bank pursues a policy of making loans for semi-capital purposes or where subsequent crop conditions prevent the collection of loans which otherwise would be liquidated, there is no return flow of income from the outside sufficiently large to replenish the loan fund. As a consequence, the available supply relative to normal requirements is reduced. In other words, a portion of the fund ceases to be of a revolving character and represents a more or less fixed investment. "Frozen assets" was the term employed in the post-war deflation, although in communities having a surplus of savings, that terminology does not strictly cover the classification in so far as semi-capital loans are concerned.

In such communities where, as a result of relatively large accumulated savings, the loan fund is larger than that needed to meet the local loan requirements for production purposes, the excess may be invested, quite safely, in loans which partake of capital or semi-capital character. So long as such long-term loans do not impair the ability of the local loan fund in meeting current production credit requirements, banks in communities with a surplus of accumulated savings can pursue a loaning policy which would be decidedly unwise for an agricultural community whose demand for production credit is equal to or greater than the volume of the local loan fund.

The bank's loan policy, likewise, may influence the supply of production credit from year to year as a result of the banker's attitude towards local conditions. When crop returns are relatively satisfactory, there is frequently a tendency for the local bank to be less exacting in requiring the liquidation of outstanding loans and to be more liberal in granting new advances. The rate of interest secured on local loans is nearly always higher than that which can be secured on outside investments, and the profit incentive frequently encourages their prudent expansion as long as the local outlook is favorable. Conversely, when agricultural returns are relatively poor, there is a tendency to require the maximum liquidation possible under existing conditions and to enter into new commitments on a most conservative basis. As a result of the season's low income, banks will receive less than the usual volume of outside funds, and they will not be in a position, therefore, to make the usual increase in the amount of funds invested outside the community for the pur-

pose of meeting the succeeding seasonal decline in deposits. With farmers receiving a reduced income from their production, the following season's demands for credit are apt to be larger than usual, and more rigorous credit policies therefore dictated.

Credit conditions outside the community may also affect the bank's loan policy to some extent. Thus, in the case of a bank having a secondary reserve composed in part of bonds, a decline in the market value of this type of security may cause the bank to be reluctant to dispose of its bonds at a loss in order to meet local demands for credit. In periods of unusually high open-market rates, such as in 1928 and 1929, the higher yield in the call market may encourage a diversion of funds from local loans. To the extent that the speculative movements in the security markets attract funds from the local community through the purchase of stocks, either outright or on margin, the normal supply of credit available for local purposes is diminished. This latter factor, however, is probably of relatively little importance in a strictly agricultural community. Where the local loan fund includes the deposits of a relatively large proportion of business and professional accounts, the movements of funds to the security markets may be of greater importance.

The problem created by the lack of public confidence in banks, arising through numerous bank failures in a particular region, necessarily causes many banks to alter their local loan policies. In order to strengthen their position to meet any abnormal withdrawal of deposits, they feel compelled to reduce local commitments and invest an increasing proportion of their assets in outside loans and securities. The latter may be readily liquidated should there be occasion for meeting any heavy withdrawals of deposits. In addition, the loss of confidence in the local bank situation, which is frequently created as a result of failures of nearby banks, induces many individuals to hoard their income in the form of currency or to deposit it in institutions located at some distance. Such a practice deprives the local bank of a portion of the deposits which it might be expected to receive and reduces the community's loan fund. The situation in the northwestern states during the last ten years, in which the proportion of local loans to total assets has been continually declining, is a striking illustration of the change in local credit policies which has been brought about through the influence of the bank failure situation.

The third factor, the status of the community's economic de-

velopment, represents an influence upon the supply of credit which varies from community to community, an influence which also may affect the operations of the two factors already mentioned. In a newly developed agricultural area the resources of farmers are usually inadequate to supply a loan fund equal to the normal loan requirements. The same situation is frequently true in regions where the individual credit requirements are large in proportion to local resources, such as in the livestock range areas and in certain sections devoted to the growing of truck crops. A transition from one type of agricultural production to another involving increased credit requirements occasionally sets up a demand for loans in excess of the local supply available for meeting that demand. Assistance for seasonal requirements, therefore, is secured by local banks through borrowing of the Federal Reserve banks or of correspondents in the larger cities. In addition, the facilities of supplementary loan organizations such as livestock loan companies and agricultural credit corporations are often utilized.

This same procedure of temporary seasonal assistance is also necessary in communities where the agricultural development has followed along lines of marginal production, that is, the farm income received by the greater part of the community has not been sufficient to build up accumulated savings, either through increase in the equities of their farms or in the form of other assets. Such conditions are found in some communities where there is a high ratio of tenancy or where the economic progress is such that production loans are essential to provide for the family living. Large sections of the cotton-growing area would probably be included in this classification.

On the other hand, in sections of the country where agriculture has been relatively remunerative, accumulation of wealth has proceeded at a rate which provides a loan fund for the community in excess of its normal requirements for production credit. In these communities any temporary seasonal withdrawal of funds may be met by disposing of assets representing the investment of savings. It is pertinent to observe, however, that in most well established agricultural communities where the supply of production credit is ample, the accumulation of wealth has followed a more or less diversified production and there is, therefore, but little seasonality in the net movement of funds away from the community. Banks in communities of this character can safely depart from the policy of limiting the local loan

funds to advances which are strictly short-term in character. As long as a bank has a surplus of loanable funds in excess of the normal peak-requirements for short-term production credit it can profitably increase its loans for semi-capital purposes, which are usually considered of intermediate term, and in advances upon real estate security.

We may now turn to a consideration of the influences which are exerted upon the local supply of production credit through factors outside of the community, general monetary and economic phenomena. It is probably quite clear from the foregoing discussion that the supply of local production credit is influenced primarily by the flow of income into the community, at least in the one-crop and marginal areas. This income, of course, is dependent chiefly upon the level of farm commodity prices and upon the vagaries of nature as reflected in crop yields and in livestock output. It is important to note, however, that the prices received for such agricultural marketings are influenced to a large extent by the general state of economic activity. Studies conducted by the Bureau of Agricultural Economics show quite clearly that, aside from changes in the supply, prices of many leading agricultural commodities are influenced by the level of general business activity. The prices of meats and butter, for instance, are subject to appreciable changes in consumer demand as material variations in industrial production brings about corresponding changes in employment and payrolls. The price of cotton is also closely correlated with changes in the volume of industrial activity. The gyrations of speculation likewise seem to be reflected in the market quotations for farm products and hence influence the flow of income into agricultural communities. The stock market break of 1929 may serve as a particularly striking illustration of this relationship after all the evidence is in.

Accompanying industrial activity and speculation is, of course, the influence of monetary policies. It is clear from a review of past experience that periods of easy money conditions, after making allowance for a time lag, have had a stimulating effect upon both phenomena. Conversely, the continuation of a period of stringent credit has nearly always brought about a recession which has influenced the level of prices for farm commodities. Credit conditions in foreign countries also have a bearing upon the flow of our agricultural income to the extent that they influence the consumer demand in those particular countries which import commodities produced in the United States.

Thus it will be seen that central money market phenomena, in so far as they influence the trend of industrial production and employment, extend their ramifications to the smallest agricultural community, influencing the flow of income which is necessary to maintain the local loan fund at proper levels. When these credit and industrial factors bring about an appreciable decline in the prices for farm commodities, a severe strain upon the local fund develops, particularly in the one-crop and marginal area, inasmuch as the reduced income, after liquidating such payments as must be made to the outside, leaves an insufficient amount to meet the credit requirements of the following crop production period. Loans must be carried over to another season and the revolving character of the loan fund is impaired. Also as the result of the reduced farm income, many farmers who may be rated under normal conditions as marginal credit risks, have their equity in their operating capital so seriously impaired as to make it difficult or even impossible to secure further credit advances.

How this local loan fund of the agricultural community fits into the larger structure of the national credit system may be illustrated by outlining the procedure which is utilized in transferring funds into and out of the typical agricultural community. There are approximately 25,000 banks in the United States, and of this number about 20,000 are located in places of 10,000 population or under. Practically every local agricultural community therefore has access to such a financing institution. While the country bank is an independent unit organization, its relationship with other financial institutions has resulted in virtually making it an integral part of the larger financial structure. This integration of the activities of the individual bank into a unified financial system is accomplished through the maintenance of balances with correspondents in the larger centers and with the Federal Reserve banks. That portion of the unit bank's assets which is held in the form of correspondent balances serves as a means for debiting and crediting the transfer of funds into and out of the community and gives a great flexibility in meeting the banking requirements of its customers. The characteristic functioning of this clearing fund may be briefly outlined by considering the flow of funds in connection with a bank located in a typical one-crop area.

As the farmer customers of such an institution market their crop, the proceeds, usually representing claims on banks in the

larger centers, are deposited. These funds may be utilized by the customer in liquidating loans contracted during the production season or may go to build up the individual deposit account. In either case the country bank is placed in possession of outside claims which are forwarded to its correspondent for collection and credit. If seasonal accommodation has been extended by the correspondent to the local bank, the increase in the credit balance of the latter is utilized in paying off such borrowings. With favorable crop yields and satisfactory prices, the proceeds of the farm marketings supply the country bank with an increasing volume of outside funds which builds up its bankers' balances in the larger centers. This increase in the proportion of the banks' assets which is made up of bankers' balances is partly invested in outside loans, usually commercial paper, call loans, or readily marketable bonds. With the arrival of the following crop production season, farmers will draw down their deposit balances as they make disbursements for expenses of planting the crop and for the family living. Additional advances will be required also to tide them over to the harvest season, and the country bank experiences a material increase in its local loans. The deposits arising from such loans remain in the community only temporarily and are speedily utilized in making payments outside of the community. The outward movement of funds which therefore arises out of the deposit disbursements of the community is met by the country bank in three ways:

A. Decreasing its seasonally augmented banker's balance.

B. Liquidating its outside investments, such as commercial paper, call loans and bonds.

C. Borrowing of its correspondents or of the Federal Reserve Bank.

The proceeds of the new crop marketings, in turn, complete the cycle of the flow of funds in and out of the agricultural community, enabling the bank to pay off its borrowings, increase its bankers' balances and rebuild its secondary reserve of outside loans.

### *Mortgage Credit*

Agriculture is faced with materially different problems in connection with the second general classification, capital or mortgage credit. Unlike the facilities utilized in providing production credit requirements, the system of financing based upon the security of farm real estate is chiefly dependent upon sources of credit outside the community. The financing of such long-term

loans likewise involves a different set of financial institutions, and the volume of credit and the terms upon which it may be obtained are more susceptible to influences arising out of the general business and financial situation.

Due to the fact that agriculture is characterized by a high ratio of fixed capital investment in proportion to the value of its current annual output, with a resulting low rate of net income upon the capital investment, the accumulation of savings sufficiently large to amortize the cost of a farm is a relatively slow process. Except in well established communities with a considerable volume of accumulated savings, therefore, the problem of securing credit with which to improve farm lands and to finance the purchase of farms by new owners is largely dependent upon a source of funds outside the individual community.

The two main factors influencing the supply of mortgage funds are, therefore, the relative supply of savings available for investment in the country as a whole, and the machinery that has been established for bringing the farm borrower into effective contact with the capital market itself.

The relative supply of savings in the country is influenced, of course, by variations in the annual national income and in the proportion of that income which is saved. When industrial production is maintained at high levels there is an increased fund of savings available for investment. Changes in price level, however, may alter the supply situation, inasmuch as an appreciable change in the level of commodity prices tends to shift the proportion of the annual income which is received by the various factors of production. With a material decline in prices, the proportion of the annual income received by holders of fixed-interest obligations increases and there is a resulting increase in the proportionate supply of savings. Conversely, a rise in the price level produces a resulting decrease in the relative proportion of the annual income received by the holder of fixed interest obligations which is available for addition to the supply of savings. This influence of the major movements of prices upon the relative supply of savings can be readily discerned by comparing the movements of any recognized index of bond price quotation with the index of wholesale commodity prices.

Likewise the investment policies of commercial banks may influence the supply of investment capital, as substantial purchases of securities are reflected in an appreciation in the general average of bond quotations when the commodity price level is rela-

tively stable, and their sale, similarly, in a decline. When commodity prices are undergoing readjustment to new levels, the purchase or sale of securities by banks will tend to offset or accentuate the influence of the changes in the price level upon the relative supply of savings.

All these factors influencing the national supply of savings react upon the volume of funds which is made available for agricultural capital. If the level of rates in the bond market advances, the rate paid by borrowers on farm real estate in general also advances. Or, if the yield declines, the advantage is shared in part by farm borrowers. There is, however, an appreciable lag between general bond yields and the rate charged to borrowers on farm real estate security. Relative changes in the yields of fixed-term securities of particular industries are also of considerable importance in influencing the flow of capital funds into agriculture. Whenever the prospects of a particular industry become unusually favorable, capital is anxious to share in its future growth and there may be a temporary diversion of investment funds from other channels, including agriculture. The bidding-up of rates in order to attract investment in any or several lines of activity, similarly may result in some diversion in the flow of investment funds.

But no matter how adequate is the nation's supply of savings, it is of little benefit to agriculture unless there exist proper channels through which the farmer can tap this fund of savings. The individualistic character of farming limits the market in which the farmer may secure long-term loans. The security which he offers may be equally as sound as that which a large industrial corporation possesses, yet the latter may finance its long-term capital requirements at an annual rate which may be as much as two or three per cent lower. Some of the reasons for this differential have already been indicated. They revolve around the inherent difficulties involved in making the loan obligations of the farmer an acceptable form of investment for the securities market. In the first place, the average farm loan is of small denomination, unsuited for the development of a broad market in a particular security. The cost of making a small farm loan is relatively much higher than the cost of making a large corporate loan. Lack of specific current information on the borrower's financial condition prevents the purchaser of a farm loan from keeping informed as to the soundness of his investment. Unless the individual investor purchases a large number

of loans, the element of risk is not well diversified. The payment of interest and principal is sometimes delayed and also involves a system of collection which is less satisfactory than in the case of the large corporate issues.

Largely as a result of these difficulties, the farmer is precluded from borrowing directly in the investment markets and is dependent upon more or less specialized agencies which are in a position to overcome some of the handicaps enumerated above. The early stages of organized farm mortgage financing, therefore, were characterized by the development of a system whereby individuals or institutions usually termed "Farm Mortgage Bankers," originated loans in the agricultural areas and marketed them in communities where there was a surplus of savings. The market was largely confined to individuals or institutions who were familiar with farm real estate security. This method of securing funds for agricultural development proved very expensive for the farmer, as it was an indirect route to the actual investor involving several middlemen.

The greatest specialization in the handling of farm real estate loans which followed subsequently was developed amongst the life insurance companies, who for a long period of years have been an important factor in furnishing funds on mortgage security. These institutions have handled a large volume of funds available for investment, and therefore have been in a position to distribute the risks involved in purchasing individual small loans. In addition, their volume of purchases of loans has enabled them to organize competent loan departments with efficient appraisal and legal service. In some cases, the cost of making and distributing farm loans has been greatly reduced through the employment of district loan representatives directly responsible to the insurance company. In such cases the only intervening link between the farm borrower and the purchaser of the loan is the local bank or local agent submitting the loan application.

The main difficulty encountered in securing mortgage credit for the farmer, that is, in securing it at rates and with maturity dates somewhat comparable to those which are available to industry, thus involves two problems. It is necessary to (1) bridge the gap which exists between the individual borrower and the central money markets, and (2) to supply a loan obligation which is in acceptable form to the investment-buying public.

These two ends have been accomplished in part through the operation of the Federal Farm Loan System. Machinery has been

set up wherein the various loan applications are investigated and appraised upon an economical basis. The loans, in turn, are grouped and used as collateral for an issue of bonds sufficiently large to have a wide market, assuring the investor of proper supervision of the loans serving as the collateral for the bonds and supplying him with current data as to the financial condition of the issuing institution. This consolidation of a large number of individual loan requirements also reduces the element of risk for the purchaser of loans secured by farm real estate; the bond which he purchases is secured by collateral in the form of thousands of individual loans, and in addition, is backed by the capital stock resources of the land banks.

As a result of the farm loan system procedure, the farmers' credit requirements are met by offering a standardized security which can be purchased in practically any convenient denomination. This security bears the tax exemption privilege and in addition carries the prestige of government supervision of the underlying collateral. The benefits of this system to the farmer may be summarized briefly by stating that the plan enables him to make a more economical contact with the central money markets, thus meeting his credit requirements at a low rate and upon more satisfactory maturity arrangements.

Before leaving the general problem of mortgage credit, it is necessary to point out certain interrelationships between this classification and the supply of production credit.

In the development of a new agricultural area there is usually a rapid increase in the level of mortgage indebtedness. As long as this indebtedness is increasing at a more or less constant rate there is a flow of funds into the individual agricultural community which serves to support the local loan fund available for production credit. This inflow of funds is likewise a factor in older established communities as well, or was at least up until the post-war deflation in farm real estate values. The more or less continued advance in the price of farm commodities from 1896 to 1920, resulting in increasing farm incomes, was capitalized in higher land values. This increase in land valuation served as the basis for a somewhat similar increase in the volume of mortgage indebtedness, bringing into the agricultural community a flow of funds which was used largely for capital purposes. A portion of this flow, however, served to augment the local loan fund and must be considered as a factor influencing the supply of credit available for production loans.

With the reversal of the upward trend in farm commodity prices following 1920, the capitalization of farm income into higher land values came to an end. With the rapid decline in the level of farm prices which began in 1920, the flow of income into most agricultural communities was so materially reduced that after paying the necessary current expenses, farmers retained little or nothing with which to liquidate outstanding loans. As a result, a large portion of the short-term loans which had been made by these country banks in the preceding period developed into the classification "frozen assets." The ability of the local banks to extend further production loans was therefore seriously curtailed. The activities of the land banks and insurance companies in materially expanding their farm real estate loans after land values had ceased their upward trend, therefore enabled the customers of country banks to convert a portion of these "frozen" short-term loans into mortgage loans and to that extent to restore the revolving character of the local loan fund.

Changes in the policy of mortgage-lending agencies insofar as they reflect alteration in the method of repayments on principal account also may be considered as a factor influencing the supply of credit for production purposes. Reference has already been made to the fact that agriculture is characterized by a high ratio of fixed capital investment in proportion to the value of its current annual output. The repayment of mortgage indebtedness can therefore proceed only at a relatively slow rate. When lending agencies require as a condition for renewal the substantial reduction in the principal of their loans, or insist upon large annual amortization payments, the farm borrower may have to utilize his operating funds in making such payments or perhaps defer the liquidation of short-term loans secured from banks. In either case, such mortgage payments decrease the effectiveness of the local revolving fund in meeting the requirements for production credit.

# NOTES

The Notes section will be edited during 1932 by O. B. Jesness. Manuscripts should be addressed to him at University Farm, St. Paul, Minnesota.

For a statement as to the sort of items desired for this section, see page 155 of the Journal of January, 1931. EDITOR

## LAND UTILIZATION IN SIAM

It is generally thought that Asia is a country in which the pressure of population upon natural resources and particularly upon the available land is very great. However, such is not the case for all of Asia, the writer is convinced after spending several months in survey work in Siam. This note summarizes the facts as to land utilization in Siam and gives the major reasons why a higher proportion is not utilized for agricultural or for other economic purposes.

Siam is bounded on the east by French-Indo-China, on the north by the British Shan states, on the west by Burma, and on the south by Malaya and the Gulf of Siam. Its area is about 200,000 square miles, or 518,000 square kilometers. It is governed by an hereditary royal family, but the local officials, up to units comparable with our counties, are elected by the people themselves. Ninety-five per cent of the people are connected, at last partly, with agriculture. The chief food products are rice, fish, and fruit. The chief exports are rice, tin, teak and other wood products, fish, animal products, and sticlac. The population was about 13,000,000 in 1930.[1]

The best estimates of the utilization of Siamese lands are as follows: Of the 320,000,000 hectares[2], 224,000,000 hectares, or 70 per cent, are covered with timber; 64,000,000 hectares, or 20 per cent, are open waste-lands not utilized and not covered by timber; and the remaining 32,000,000 hectares are being used by man. The 32,000,000 hectares used by man can be divided into two classes, rice land and all other. The rice land consists primarily of 18,000,000 hectares which can be covered by irrigation water during the wet season. The other 14,000,000 hectares are utilized as follows: 4,000,000 hectares in homesteads, gardens, fruit trees, and crops other than rice; and about 10,000,000 hectares in waterways, swamps, tin ore lands, etc. The chief crops other than rice—tobacco, maize, cotton, peas, sesame, and pepper—cover 182,000 hectares, or 0.06 per cent of the total land area in Siam, or about one per cent of the land devoted to rice. A small area is in cocoanut and palm trees.

Thus, it may be seen that a very small proportion of the available land in Siam is used for agricultural purposes, in spite of the fact that the people are primarily agricultural. Why is this true?

The chief reasons appear to lie in the nature of the topography and the under population of the country in relationship to the habits of the population as to agricultural technique and food consumption.

Fifty per cent of the entire area is mountainous; most of this probably can never be used for agricultural purposes. Much of this could be used for grazing animals if the proper grasses were developed and planted; but the Siamese are followers of pure Buddhism, which places a strict prohibition on the killing of animals. The people as yet have no taste for milk or dairy products. Furthermore, there are millions of hectares of better land to be used for this purpose before these mountainous areas

[1] For the data of this note, see Zimmerman, C. C., *Rural Economic Survey of Siam*, 1931; *Statistical Yearbook of the Kingdom of Siam*, 1929; *Siam, Nature and Industry*, 1930; *Siam, General and Medical Features*, 1930. Ministry of Commerce and Communications, Bangkok.

[2] A hectare is two-fifths of an acre.

are taken up. A part of these mountainous areas could be used for wet rice cultivation by the same methods as are used in the mountains of Japan, Java, and Ceylon if sufficient pressure of population existed. However, on account of the high death rate, such a pressure of population probably will not be found in Siam for some time to come.

The consumption habits also partly explain why the rest of the land is not utilized to its full extent. From two-thirds to three-fourths of the entire calory intake by the Siamese people is in the form of rice. Of the remainder, 70 per cent probably comes from fruits and vegetables, including cocoanuts and bananas, and 30 per cent from fish and meat. No other cereal is used by the great masses of the people. On the average, it takes about an hectare of land to produce sufficient rice for one person per year under present Siamese conditions. Since there are only about 13,000,000 people, and 18,000,000 hectares are under rice cultivation, a great deal of rice is exported each year. The extension of cultivated land area in the last thirty years, along with improved methods of production, has caused rice production to increase more rapidly than the population, and the export of rice has almost quadrupled in quantity since 1895.

Rice is produced in Siam chiefly under irrigation. Since the season of rainfall is short, being concentrated in a few months, the amount of land which it is possible to irrigate is probably limited at the most to 25,000,000 hectares. The high death rate on account of tropical conditions and the present medical technique available to the masses of the people, has kept the number of the population down, so that not even all the irrigable land has been utilized. "Living" has been so easy for the average Siamese that the people have not been stimulated to utilize more of their land resources. Neither have they been incited to a great extent to utilize the available cultivated lands more intensively.

These same conditions have kept the population from using the land suited for dry farming. It may be estimated that there are from fifty to seventy million hectares of land available for dry-crop cultivation unutilized in Siam today. The agricultural tools used at present are not adapted to the cultivation of dry land. While it is possible to prepare a little of the unirrigated land by the present utensils and animals, such a labor is very difficult and inefficient.

The whole interest of the people is in the one wet-land crop, rice. Some of the recent developments in Siam portend changes in the future utilization of the land. First of all, the population has begun to increase rapidly, due to public health measures which the government is adopting. Second, there is a changing material standard of living among the people. The people have come in contact with other nations and wish to purchase many imported articles as well as many local manufactured articles for consumption. The government is constantly increasing its expenditures for services rendered to the people. These two factors are acting as an increased stimulus for a more aggressive agriculture. Finally, the government itself has become interested in its balance of trade with other countries and is attempting to stimulate the development of its agriculture. The trend seems to be toward a greater utilization of land and a more intensive utilization of that under cultivation at present. However, it is apparent that it will be a great many years under the best of conditions before all of the available agricultural land will be taken up and farmed according to the best methods already known.

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## SUGGESTION ON DEPRECIATION FROM BOHM BAWERK

In his analysis of interest Bohm Bawerk called attention to the way that interest should be taken into consideration when determining depreciation in the following terms:

"As to the actual fact that the successive diminution of value which a good suffers in the course of its wear and tear does not go parallel with the degree of its physical wear and tear but is slower at the beginning and quicker as time goes on, there can be no doubt. It may be seen in its purest form, because there it is not confused through subjective inexactednesses or caprice, in the rating of valuable paper which brings in a fixed annual amount for a limited number of years. A bond, e.g., which assures its owner the right of drawing ten years' coupons of $1,000, and possesses (on a calculation of 5 per cent compound interest) an initial course value of $7,722 (Spitzer's *Tables*, p. 274) does not lose $772.2 for each of the ten years which make up its lifetime, although in each of these years it loses exactly one-tenth of its content. In the first year it loses $614, in the second $645, in the third $677, and so on successively $710, $747, $783, $823, $864, $907, and finally in the tenth year, $952, the sum it was still worth at the beginning of this latter year. But in all other kinds of durable goods the same course of wear and tear may be observed with sufficient accuracy, although for obvious reasons we seldom make so exact and mathematical a calculation."[1]

While Bohm Bawerk made this statement in connection with his attempt to justify his theory of interests it has significance for valuations of equipment and buildings and of their uses in various analyses in farm economics, such as in making inventories, in estimating the relative economy of different kinds of equipment or buildings, in surveys of various kinds requiring valuations of farm property, etc. Bohm Bawerk's conclusion is at variance with a common opinion that the heaviest depreciation comes in the early life of the equipment. The reason for this difference is that Bohm Bawerk considered only interest, while many present-day analyses fail to consider interest at all. Other factors that must be taken into consideration are repairs, taxes, and insurance. Since interest, taxes, and insurance vary directly with the value of the equipment, they can be considered together and will be included in this analysis as one item.

The following four tables illustrate the valuations of the annual inputs of equipment when four different methods of depreciation are used. It is assumed that the equipment was purchased in 1931 at $100, that it will last ten years, and that at the end of that time it will be discarded without value. It is assumed that the repair expense increases regularly at the rate of $1.00 each year and that the value of the annual inputs of interest, taxes, and insurance is 10 per cent of the value of the equipment at the beginning of each year. It is also assumed that the increase in the repair expense is sufficient to include the extra labor that may be involved in operating the older equipment and that the equipment does satisfactory work during each of the ten years.

In the table below, the straight-line method of depreciation is the only method that gives a uniform value of input items for each of the ten years. The reason for this uniformity with the straight-line method is that the repair expense charged increases in the same amounts that the interest, tax and insurance items decrease. This does not prove that the straight-line method of depreciation is the best,

[1] *The Productive Theory of Interest*, by Bohm Bawerk, William Smart's translation, Reprint 1923, G. E. Stechert & Co., pp. 347-48. Figures originally given in pound sterling have been changed to dollars.

| | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Value at beginning of year | 100.00 | 90.00 | 80.00 | 70.00 | 60.00 | 50.00 | 40.00 | 30.00 | 20.00 | 10.00 | Total |
| Costs | | | | | | | | | | | |
| Depreciation (10%) | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 100.00 |
| Interest, taxes and insurance (10%) | 10.00 | 9.00 | 8.00 | 7.00 | 6.00 | 5.00 | 4.00 | 3.00 | 2.00 | 1.00 | 55.00 |
| Repairs[1] | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 | 55.00 |
| Total cost | 21.00 | 21.00 | 21.00 | 21.00 | 21.00 | 21.00 | 21.00 | 21.00 | 21.00 | 21.00 | 210.00 |

TABLE 2.—ANNUAL VALUE OF INPUT ITEMS WITH "DIMINISHING VALUE PERCENTAGE" METHOD OF DEPRECIATION

| | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Value at beginning of year | 100.00 | 80.00 | 64.00 | 51.20 | 40.96 | 32.77 | 26.22 | 20.99 | 16.80 | 13.44 | Total |
| Costs | | | | | | | | | | | |
| Depreciation (20%) | 20.00 | 16.00 | 12.80 | 10.24 | 8.19 | 6.55 | 5.24 | 4.19 | 3.36 | 13.44[2] | 100.00 |
| Interest, taxes and insurance (10%) | 10.00 | 8.00 | 6.40 | 5.12 | 4.09 | 3.27 | 2.62 | 2.09 | 1.68 | 1.34 | 44.61 |
| Repairs[1] | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 | 55.00 |
| Total Cost | 31.00 | 26.00 | 22.20 | 19.36 | 17.28 | 15.82 | 14.86 | 14.28 | 14.04 | 24.78 | 199.00 |

TABLE 3.—ANNUAL VALUE OF INPUT ITEMS WITH "SUM OF YEAR DIGITS" METHOD OF DEPRECIATION

| | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Value at beginning of year | 100.00 | 81.82 | 65.45 | 50.90 | 38.17 | 27.26 | 18.16 | 10.88 | 5.44 | 1.81 | Total |
| Costs | | | | | | | | | | | |
| Depreciation | 18.18 | 16.37 | 14.55 | 12.73 | 10.91 | 9.10 | 7.28 | 5.44 | 3.63 | 1.81 | 100.00 |
| Interest, taxes and insurance (10%) | 10.00 | 8.18 | 6.54 | 5.09 | 3.82 | 2.73 | 1.82 | 1.09 | .54 | .18 | 39.99 |
| Repairs | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 | 55.00 |
| Total Cost | 29.18 | 26.55 | 24.09 | 21.82 | 19.73 | 17.83 | 16.10 | 14.53 | 13.17 | 11.99 | 194.99 |

TABLE 4.—ANNUAL VALUE OF INPUT ITEMS WITH "COMPOUND INTEREST" METHOD OF DEPRECIATION

| | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Value at beginning of year[3] | 100.00 | 93.72 | 86.82 | 79.23 | 70.88 | 61.69 | 51.58 | 40.47 | 28.24 | 14.79 | Total |
| Costs | | | | | | | | | | | |
| Depreciation | 6.27 | 6.90 | 7.59 | 8.35 | 9.19 | 10.11 | 11.12 | 12.23 | 13.45 | 14.79 | 100.00 |
| Interest, taxes and insurance (10%) | 10.00 | 9.37 | 8.68 | 7.92 | 7.08 | 6.16 | 5.15 | 4.04 | 2.82 | 1.48 | 62.70 |
| Repairs[1] | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 | 55.00 |
| Total Cost | 17.27 | 18.27 | 19.27 | 20.27 | 21.27 | 22.27 | 23.27 | 24.27 | 25.27 | 26.27 | 217.70 |

[1] Includes any additional labor required to operate an old machine above that required to operate a new machine.
[2] Includes remaining value to be charged off.

Formulae used for determining value at beginning of any one year is: value $= 100 - 100\,\frac{(1+r)^n - 1}{(1+r)^l - 1}$ where $r$ equals rate of interest, $l$ equals probable life in years, and $n$ equals present age in years.

for the amounts used for repair charges were arbitrarily assumed, and these figures might be varied in such a way as to show any one of the other methods as giving uniform total equipment inputs. If we assume a constant repair charge, the "compound interest" method will give a uniform equipment figure.

In actual practice, the method of depreciation that will give the most uniform total equipment figure will vary with the different kinds of equipment. In case of a harrow which requires practically no repairs, the annual figures will run more uniformly if the "compound interest" or some other method is used whereby the amount of depreciation is increased as the harrow becomes older as suggested by Bohm Bawerk, while in the case of a tractor the reverse may be true. The above tables are presented merely to show how repairs, interest, taxes, and insurance should be taken into consideration when determining the depreciation.

It is probable that there has been a tendency to emphasize too much the need for assigning the largest part of the depreciation to the early years of the life of the equipment. There are two reasons for this. First, frequently only the effect of repairs and the additional bother of handling the older equipment on depreciation has been taken into consideration. Second, the actual sale value of a machine decreases more rapidly during the first few years of its use. If equipment is purchased to be worn out, use rather than sale should be the basis for determining depreciation.

There is no one best method of figuring depreciation. The purpose for which the valuation is made and kind of equipment are the principal determinants of method. There is also need for adjustments when repairs are made at irregular times. With much of the farm equipment, it is probable that the straight-line method will give as accurate results as any of the methods commonly used. When this method is used, it is assumed that the decreasing interest, tax, and insurance charge as the equipment becomes older will be approximately offset by the increasing repair expense.

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## A COMPARISON OF PRICES OF HOGS ARRIVING BY TRUCK AND BY RAIL AT SOUTH ST. PAUL

In deciding whether to ship livestock to terminal markets by truck or by railroad, producers must consider not only costs of shipping and service, but also the prices received for the livestock. Some producers seem to feel that livestock arriving by truck is discriminated against by buyers and sells for somewhat lower prices than livestock shipped by rail. The livestock commission men at South St. Paul say that there is no discrimination and that on any particular day livestock of the same grade arriving by truck or by rail tends to sell for the same price. Minnesota Experiment Station *Bulletin No. 278* "Trucking Livestock to South St. Paul," presents the results of a study of comparative shipping costs. This has since been supplemented by a study of comparative prices limited to hogs because only hogs are uniform enough in quality to make the results significant. This note presents briefly the results of this study.

Three livestock commission firms at South St. Paul cooperated in this study by supplying account sales information on prices of all lots of ten or more hogs sold by them from trucking territory south and west of South St. Paul, whether coming to market by rail or truck, during September, October, November, and December, 1930, and during one week of each of the months of January, February, March, and April, 1931. The records are for 44,823 hogs arriving by truck and for 114,288 arriving by rail. Both rail and truck hogs were classified into four classes according to average weights and prices compared for each.

In one analysis, the comparisons were of prices received by the same firm for hogs of a particular weight classification when received both by rail and truck on a certain day. Such a comparison has been designated as a case in the analysis. Out of 546 such cases noted, about one-third, or 179, showed prices of hogs arriving by truck as equal to prices of hogs arriving by rail. In 195 cases, the price of truck hogs was higher than of rail hogs, and in 172 cases prices favored the rail hogs. The prices favored the truck hogs for all weight classes except the 181-210 pound group, for which there were 77 cases where average prices of rail hogs exceeded average prices of truck hogs and only 55 cases where those of truck hogs averaged higher. It should be noted that this is the class of weights usually purchased in South St. Paul on orders for shipment east. This order demand is for carload lots, and tends to favor the larger shipments that arrive by rail.

The differences, however, were very slight, as indicated in the table following, which gives the averages of all average daily prices for truck and rail hogs received at South St. Paul by the same three firms during the fall of 1930. The figures presented indicate that there are days when the price of truck hogs averages higher than that of rail hogs, and other days when the opposite may be true. This is explained to some extent by the variations in grade within a particular weight classification, although the hogs come from the same territory, and on the average tend to grade the same whether arriving by rail or truck. The more important reason is that truck hogs come to the market throughout the entire day and many may be sold late in the day while most of the rail hogs are sold during the morning trading hours. If prices rise during the day, truck hogs will tend to show a higher average price. If prices fall they will average lower. Also rail hogs are generally given a fill at the market, but most of the truck hogs are not fed before being sold.

A COMPARISON OF AVERAGE DAILY PRICES FOR HOGS ARRIVING BY TRUCK AND RAIL AT SOUTH ST. PAUL DURING SEPTEMBER, OCTOBER, NOVEMBER AND DECEMBER, 1930.

| Weight | Number of days | | | Average price for all days | |
|---|---|---|---|---|---|
| | Truck price higher | Rail price higher | Prices equal | Truck | Rail |
| 151–180 lbs. | 32 | 20 | 12 | $8.73 | $8.71 |
| 181–210 lbs. | 31 | 35 | 12 | 8.78 | 8.79 |
| 211–240 lbs. | 24 | 21 | 23 | 8.66 | 8.65 |
| 241–270 lbs. | 14 | 9 | 17 | 8.26 | 8.25 |

The general conclusiion of this study is that on the average hogs trucked in to South St. Paul tend to sell for the same price as hogs of similar grade shipped by rail. It confirms the statement made by some commission firms that at South St. Paul under present conditions there is no discrimination on the part of buyers against hogs arriving by truck.

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## THE USE OF A "CLOSED" BASE CONTRASTED TO AN "OPEN" BASE IN THE BASIC SURPLUS PLAN FOR CONTROLLING THE PRODUCTION OF MILK

During the past two or three years in particular, there has been much discussion of the basic surplus price plan for controlling the production of milk. Several of the largest markets in the United States now use the basic-surplus plan in distributing proceeds to producers. Of the markets now using this type of plan, Baltimore has

the distinction of having used it over the longest period of years, since 1918 to 1931, or over 13 years. Philadelphia was the next large city which put a basic-surplus plan into effect. The greater part of the milk markets of the country now using the basic-surplus plan combine it with the classified basis of selling milk to distributors. Markets having a combination of a basic-surplus and a classified price plan include Pittsburgh, Detroit, Baltimore, Boston, Hartford, Milwaukee, and Peoria, as well as several other markets in the country. The general use to which the basic-surplus plan is now being put warrants a discussion of the theory of the plan and its application in practice. The first question that one may ask is, "What is the purpose of the basic-surplus plan?" Since there are two divergent viewpoints in regard to the use of the basic-surplus plan, it is necessary to treat these separately.

Undoubtedly the original purpose of the basic-surplus plan was to encourage a production of milk throughout the year which would correspond closely to the market demand for milk. The basic-surplus plan was designed to give a price premium to producers having an even production of milk, thus to level down the high summer peak of production and build up winter production. It had this effect in the Philadelphia market, the monthly variation in production being reduced from a range from the low to high month, of 57 per cent in the year in 1921, to a range of only 23 per cent in the year of 1925. Similar effects have been attained in most of the other markets using a basic-surplus plan.

In more recent years, however, the basic-surplus plan has come to have an altogether different meaning from the above in the minds of a certain group of cooperative leaders. These look to the basic-surplus plan as a means to control the total production of milk, and frequently to limit its production arbitrarily. They accomplish this by means of what may be termed a "closed basic period." The producer who has established a basic volume at some previous period is not permitted to increase his basic volume after a given time; and new producers are shut out of the organized market excepting in so far as they may be willing to sell milk at manufacturing prices.

According to the original application of the basic-surplus idea, producers were encouraged to change their seasonal production so that it would conform to market needs, while in the second application producers are practically prevented from changing their production in any way except by reducing it. The first application presupposes a dynamic industry; the second a static industry.

The practice of giving a higher average price to producers who have a relatively even production throughout the year is sound in principle and economically justified. From a buyer's viewpoint, the value per unit of milk produced uniformly throughout the year is higher, since a greater proportion of this volume is available for higher-value uses, namely, as milk and cream. The two-price basis used in the basic-surplus plan is far more effective in ironing out the seasonal variations in production than the method commonly employed in a flat-price plan, namely, the raising and lowering of an average price in the different seasons of the year.

### *Analysis of the Operation of the Closed Basic Period*

The purpose of the closed basic period is to limit the total production of milk to the approximate market requirements for fluid sales and to maintain a high price for this basic production. It effects this, as stated, by projecting a basic volume of some previous period into the future and preventing a producer from increasing his basic volume over that of the previous period. In essence, the principal purpose of the closed basic period is to maintain a basic price which is higher than is warranted by economic conditions underlying the production of milk.

One may now ask the question, "What are the dangers of a closed basic period?" This question should be answered from both the economic and legal point of view. From an economic viewpoint, the use of a closed basic period is unsound since it tends to penalize the more efficient dairyman for the benefit of the less efficient dairyman, particularly if it be continued over a period of years. No matter how much a producer may desire to effect an increased output, he cannot do it unless he is willing to accept the manufactured price for all of this increased volume.

From a legal viewpoint, an arbitrary limitation of production and an enhancement of prices to consumers may be considered a combination in restraint of trade. One student of the legal phases of agricultural cooperation ventures the following opinion on this point:

> In so far as I am able to apply these principles to the question whether a closed basic period preventing old producers from increasing their basic volume, or preventing new producers from getting in on a price basis comparable to that offered old producers, the result would seem to be something like this: So long as the association does not, by reason of its contracts with distributors, have a monopoly of the trade there seems to be no reason why its members could not agree to any relations that they choose between themselves not affecting the consumers. But if the association practically controls production and distribution of milk, it seems to me that the closed basic period, if brought in question before the courts, would be in considerable danger of being held illegal.

While this opinion might be unsupported in the courts, it is at least the view of one who is concerned with interpretations from the legal standpoint and may be well worth bearing in mind.

### *Evils of and Remedy for an Open Base*

The principal evil which may be ascribed to the open base is the unstabilizing effect of having producers increase their volume unduly within a given year, or of having new producers, who may be called "in-and-outers," come into the market and obtain a fraction of the market's basic volume without earning this privilege. Instability of production is a serious matter. One method suggested to prevent this is the use of a three-year moving base. For example, if a producer had 200 pounds of milk in one year, 210 the next year, and 220 pounds the third year, the average of this, or 210 pounds, would be the total volume upon which his basic would be derived for the coming year. If the market percentage of the aggregate production during the basic period were 60 per cent, this producer would receive 60 per cent of the 210 pounds, or 126 pounds, as his basic volume for the ensuing year. A variant of this method is used in the Champaign-Urbana market of Illinois in 1932, the 1930 basic volume being taken as two-thirds and the 1931 basic volume as one-third in arriving at the aggregate basic volume for the year 1932, no 1929 data being available. After 1932 the data for the three full years will be available. Likewise, in the Detroit market, the total production during the basic period of 1929 was counted as two-thirds, and the total volume of the basic period of 1930 was counted as one-third in computing each producer's basic volume for 1931.

There seem to be strong reasons for the use of a moving base. Within a period of a few years, it permits a new producer in a milkshed to become established with a basic volume on a parity with old producers, and it likewise permits old producers to increase their basic volumes if they so desire. Such a systematically shifting basis can be used to avoid both the uneconomic and other bad features of the closed basic period and the unstabilizing effects of the open basic period when this is fully opened up each year.

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## THE AGRICULTURAL OUTPUT OF THE IRISH FREE STATE

A census of agricultural production was carried out in the Irish Free State for the year 1926-27, the results of which were published in 1930. In this short note an attempt is made to summarize some of the information contained in the report which is entitled *The Agricultural Output of Saorstat Eireann, 1926-27.*

It is necessary, however, to describe briefly the Irish Free State from an agricultural standpoint. The coast is mountainous and very much indented, while the center is a great plain which covers about one-half the area of the country. The best agricultural land is found in this plain and the farming in certain portions of it has a tendency to be much more specialized than the farming in the coastal districts. In particular the area which centers about southeast County Limerick and is about 2,000 square miles in extent is almost exclusively given over to dairy farming and the portion of Leinster centering about County Meath is used solely for the fattening of livestock, especially cattle. These two areas, the most fertile in Ireland, have limestone as the underlying rock, and since the annual range of temperature is small and about a mean of 50 degrees Fahrenheit, the animals can live out of doors at all seasons of the year. Milch cattle are housed at night from November to May but dry stock are frequently left in the open and only supplied with moderate quantities of hay. The rainfall is evenly distributed throughout the country, the relative humidity is always high so that the rearing of all kinds of livestock is more favored by Irish Free State farmers than the growing of cereals.

The total area of land is about 17,026,000 acres. It is utilized as follows:

UTILIZATION OF LAND IN IRISH FREE STATE, 1930

| *Purpose* | *Acres* |
|---|---|
| Corn Crops | 791,000 |
| Root and Green Crops | 656,000 |
| Hay | 2,296,000 |
| Pasture | 8,082,000 |
| Woods and Plantations | 239,000 |
| Other Lands (i.e., land not used for agriculture) | 14,960,000 |
| *Total* | 27,024,000 |

The greater part of the land under corn crops was utilized for oats, 644,000 acres, and barley, 116,000 acres. Only 27,000 acres of wheat were grown. Of the area under root crops, potatoes, 347,00 acres and turnips, 179,000 acres, covered about 80 per cent. Mangels were grown on 80,000 acres. The area under first crop hay was 331,000 acres. It is seen, therefore, that Irish agriculture is, to a considerable extent, based on the natural qualities of the soil, more particularly natural pasture. The total number of cattle in the country was 4,038,000, of which about one million and one-quarter were milch cows. Sheep numbered 3,515,000 and pigs 1,052,000. The total number of horses was 448,000, about 70 per cent of which were used for agricultural purposes.

The census year referred to the disposal of crops produced in 1926, while for livestock the year of inquiry was the period of twelve months ending May 31, 1927. Gross output means the portion of total production which was sold off farms or consumed in farm households together with increases in stock between the beginning and end of the year of inquiry. Produce used for further agricultural production was not included. In valuing the output, prices which prevailed in fairs and markets were taken. The following table gives in summary form the results of the census:

AGRICULTURAL OUTPUT, 1926-27

| *Commodity* | *Value in £* | |
|---|---|---|
| Livestock and Livestock Products | | |
| Cattle | 13,917,000 | |
| Milk and milk products | 13,697,000 | |
| Sheep and Wool | 2,743,000 | |
| Pigs | 9,874,000 | |
| Horses | 1,234,000 | |
| *Total* | | 41,461,000 |
| Crops | | 8,264,000 |
| Eggs and Poultry | | 9,077,000 |
| Turf | | 5,938,000 |
| Miscellaneous (e.g., honey) | | 77,000 |
| | | £64,757,000 |

In considering this table it is necessary to bear in mind that the greater proportion, 79.5 per cent, of the actual crops grown in the country were used for further agricultural production and so are not included. It is an illustration, however, of the great importance of livestock and livestock products to Irish Free State farmers as a means of securing an income in cash and kind. Of the crops utilized in this manner the potato was much the most important, the output being 741,000 tons valued at £3,786,000. Cabbages, 167,000 tons valued at £920,000; oats, 2,553,000 hundredweight valued at £989,000; and barley, 2,256,000 hundred-weight valued at £902,000; were the other crops produced in considerable quantity for domestic consumption and sale. The greater part of the output of poultry and eggs was accounted for by eggs, 10,791,000 great hundreds valued at £6,690,000.[1]

The gross agricultural output was utilized as follows:

| | £ | % |
|---|---|---|
| Consumed by the Agricultural Community | 23,071,000 | 35.6 |
| Consumed by others in the Irish Free State | 11,569,000 | 17.9 |
| Exported | 28,400,000 | 43.9 |
| Increases in Stocks | 1,717,000 | 2.6 |
| | £64,757,000 | 100.0 |

More than one-third of the gross output was therefore consumed by agriculturists, one-sixth by non-agriculturists in the Irish Free State, while forty-four per cent was exported to Great Britain and Northern Ireland. In absolute figures, the export market is therefore two and one-half times as valuable as the home market, but the townsman in the Irish Free State is relatively a much better customer than the inhabitant of the United Kingdom. Each Irish Free State non-agriculturist consumed £10 per head of Irish Free State agricultural produce in 1926-27, each person in Great Britain and Northern Ireland about 13s., and each agriculturist in the Irish Free State £12. 14s., the valuation being at farmers' prices in each case. These figures show the importance to Irish agriculture of an increase in the number of urban dwellers in the country itself.

Of interest is the percentage of the output of different products which was utilized in the different ways. Thus 94.2 per cent of the turf[2] produced, 86.1 per cent of the potatoes, and one-half of the output of dairy products were consumed by the agricultural community. So far as is known, the agriculturists of the Irish Free State are the world's greatest consumers of butter, as they use 72 per cent of the total butter consumed in the country and the average consumption for the whole community was

[1] A great hundred is 120 eggs.
[2] Turf is peat cut into pieces of brick size and shape, dried and used for fuel.

38 pounds per head. On the other hand, the consumption of meat is very low and only an infinitesimal portion of the output of beef, less than one per cent, is consumed in the homes of the producers. Eggs are, however, a staple diet and 47 per cent of the total output of poultry and eggs were consumed by the agricultural community. The urban community seem to have indulged in a more varied diet and the consumption of the different kinds of food was fairly uniform throughout the whole range. The following table shows the value of the principal agricultural exports and compares the value in each case witth the total output of the product:

IRISH FREE STATE AGRICULTURAL EXPORTS, 1926-27

| | *Value*[3], £ | *Percentage of Total Output* |
|---|---|---|
| Exports of Cattle and Calves | 11,292,000 | 81.8 |
| Pigs | 5,416,000 | 59.7 |
| Butter and Cream | 3,791,000 | 37.3 |
| Poultry and Eggs | 3,645,000 | 40.9 |
| Sheep and Wool | 1,755,000 | 64.0 |
| Horses | 1,032,000 | 83.6 |
| Other Commodities | 1,469,000 | 8.2 |
| | £28,400,000 | 43.9 |

This table shows the importance of the export trade in livestock. All the individual items in it are either live animals or the products of livestock.

The number of workers in agriculture was 672,129 when the census of 1926 was taken, and the output per worker was therefore £96 in the census year. This compares very unfavorably with the output in England and Wales, £169, and in Scotland, £184, and is lower than Northern Ireland, £104.[4]

In order to estimate net output it was only necessary to deduct from the gross value of output the value of farm materials purchased. These amounted to £8,549,000, composed of imported animal feed, £6,559,000; fertilizers, £1,301,000 and seeds £689,000. The net output was, therefore, £56,208,000. In order to get the income per worker in agriculture on a basis that can be compared with industry, it is necessary to value the products consumed at retail prices. It was therefore estimated that the net output, when this revaluation had been made, was £67,750,000 or about £101 per worker in agriculture. But before the income enjoyed by farmers and labourers could be estimated, it was necessary to deduct from this figure such charges as rents and taxes and the cost of repairs to and depreciation of machinery. These were estimated to total £8,500,000, so that the remuneration to the workers in agriculture was estimated at £59,250,000 or an average of £88 per head. This was considerably less than the average income of workers in industry, £133 per head, but the contrast is not quite so great as these figures indicate, as the great majority of the workers in agriculture have to pay no house rent out of the £88. Even where house rent has to be paid by agriculture workers, it is a very small item, generally about 2s. per week for a four-room cottage.

*John O'Donovan*

*Harvard University*

[3] This value is at farmers' prices.

[4] The output of these countries was valued at Irish Free State prices in making this comparison.

# BOOKS RECEIVED

Black, J. D. Editor, *Research in Agricultural Land Utilization.* New York: Social Science Research Council. 1931. 201 pp. $.75. (Reviewed in this issue)

Black, J. D. *Research in Agricultural Credit.* New York: Social Science Research Council. 1931. 158 pp. $.75. (Reviewed in this issue)

Claassen, Cornelius J. *Making Farms Pay.* New York: Macmillan Co. 1931. 126 pp. $2.00.

Hicks, John D. *The Populist Revolt.* St. Paul: The University of Minnesota. 1931. 473 pp. $4.00.

Hulbert, Archer Butler. *Soil, Its Influence on the History of the United States.* New Haven: Yale University Press. 1930. 227 pp. $2.50.

*Jahrbuch der Gesellschaft für Geschichte und Literatur der Landwirtschaft.* Weimar. Gesellschaft für Geschichte und Literatur der Landwirtschaft. Vol. XXX, part 2/3. 1931. 50 pf. (Reviewed in this issue)

Sanderson, Dwight, *The Rural Community.* New York: Ginn and Co. 1932. 723 pp. $4.40.

Tassinari, Guiseppe. *La Distribuzione del reddito nell' Agricoltura Italiana.* Federazione Italiana dei Corsorzi Agrari. 1931. 299 pp. L. 45. (Reviewed in this issue.)

Von Bissing, Dr. W. M. Freiherrn. *Der Realkredit der deutschen Landwirtschaft.* Berlin: Walter de Gruyter & Co. 1930. 232 pp. RM 9. (Reviewed in this issue.)

Wiley, Clarence Alton. *Agriculture and the Business Cycle since 1930.* Madison: University of Wisconsin. 1930. 237 pp. $1.25. (Reviewed in this issue.)

Woodward, Carl Raymond. *The Development of Agriculture in New Jersey.* Bulletin 451. New Brunswick: New Jersey Agr. Exp. Sta. 1927. 314 pp. $2.00.

# BOOK REVIEWS

***Research in Agricultural Land Utilization, J. D. Black,*** Editor. New York: Social Science Research Council. 1931. 201 pp. 75 cents.

Because of the widespread interest that now prevails in national and regional plans for land utilization, the report on the scope and method of Research in Agricultural Land Utilization recently released by the Advisory Committee on Social and Economic Research in Agriculture should prove of special interest and value at this time. This report is the second in the series on scope and method of research in the different fields of agricultural economics that this committee has prepared.

The first fourteen pages briefly describe the object of the report, the nature and scope of land utilization as a field of research and its relationship to the natural sciences, to farm management, to economics of production, and to conservation. The lay-out of the field is next outlined in terms of the essential operations involved and the information included, under each of the following five main headings: (a) Physical characteristics of the area under consideration, (b) interrelationships of physical conditions, (c) demographic and institutional environment such as drainage, irrigation, and communication facilities, urban centers, population, land tenure, land values, and land policies, and methods of settlement, (d) present methods of utilization and systems of organization for utilization, and (e) determining the most efficient and desirable uses for the future.

The body of the report contains one hundred and eighty-five pages devoted to the discussion of the methodology of each of nearly forty suggested research projects. "The list is not intended to include all possible projects, but instead merely to serve as an outline of the field, with a few examples for each part of it." The projects presented consist of combinations of the various steps and operations as previously outlined.

The projects are logically grouped into (a) those involving a description and explanation of the land utilization of an area, first, as to natural factors, and second, as to social factors; (b) those involving the forecasting of most advantageous use of land; (c) those involving non-agricultural land uses especially; (d) miscellaneous projects; and (e) those directed specifically at developing land utilization theory.

Twenty-four persons are named as having directly contributed to the preparation of the report. Although the acknowledgements state that "this report represents the joint effort of most of the experienced research workers in its field," a survey of the authorship of the project statements included discloses the fact that less than half have been written by individuals with specialized experience in the specific type of project under consideration. This situation is partly explained, of course, by the fact that approximately one-third of the projects listed are of types that have as yet been largely untried. However, it would appear that a much larger proportion of the research workers in the field of land utilization should have availed themselves of the opportunity specifically offered them individually of contributing to this report. It is to be hoped that more active cooperation upon the part of research specialists may be obtained in the preparation of the remainder of this series of reports in order to make the project statements as realistic and helpful to others as possible.

A few minor suggestions regarding the form of the report suggest themselves. Since it has no index, a somewhat more detailed table of contents would be helpful. The form and completeness of citations and bibliography vary considerably throughout the report. Uniform editing in this regard appears desirable, particularly as regards completeness of reference to author, date of publication, and publisher. One

or more of these items are missing in a number of references. Since the same works are frequently referred to by the different contributors, a terminal bibliography with text citations thereto suggests itself.

Properly used, this report will prove a helpful guide and stimulant to the development of effective research on land utilization problems, summarizing, as it does, so much of the experience of present-day workers in this field. It should be especially useful to younger research workers. In using it, however, they should bear in mind that the project statements included vary considerably in quality, as some reflect the realism of mature experience much more than others, partly because of the differences in the qualifications of the different contributors and partly because so much of the field has yet to be actively explored.

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*Research in Agricultural Credit*, by J. D. Black. New York: Social Science Research Council. 1931. 158 pp. 75 cents.

Contributions to this report on research in the field of farm credit came from practically all of the better known persons who are working in that field. To Prof. M. R. Benedict, the executive secretary, belongs most of the credit for the skillful way in which the various contributions have been assembled.

This is the third of a series of similar research programs in the several divisions of agricultural economics, all of which are designed to aid directors of research and individual research workers in planning new projects and avoiding duplication of work already done. It does not preclude, however, the necessity of some sort of cooperation for the prevention of duplication with respect to future projects in this field.

In Professor Benedict's introductory statement entitled the "Definition of the Field," a comprehensive survey of the whole sphere of rural credit is condensed into some five pages. This is followed by a similar statement of "Basic Principles and Concepts" in the preparation of which Mr. Norman J. Wall collaborated with Dr. Benedict.

There follows a summary of existing research in agricultural credit which is remarkably complete, but the various items are run together in an unappetizing series of paragraphs instead of being listed on separate lines, as is the custom in presenting extensive bibliographical material. No attempt is made to single out the really significant contributions.

In the section on "Sources of Information," Dr. Benedict points out fully the pitfalls encountered in the use of data from the reports of federal and state credit bodies and to an even greater degree in data obtained by United States census enumerators with respect to farm indebtedness. The reviewer agrees with him that the most valuable sources are the files and records of banks and merchants and analyses of the financial aspects of the operations of individual farms.

The remainder of the bulletin, some 140 pages, is given over to outlining a list of thirty-two research projects in the field of agricultural credit and to a discussion of the correct methodology to be employed in each case. The projects are arranged under six groups according as the approach is by (a) Areas, (b) Institutions, (c) Types of Credit, (d) Particular Operations Connected With Credit, (e) Commodities, (f) Miscellaneous.

Area studies must of necessity deal with institutions, types of credit, and other phases of the whole subject which constitute the projects listed under other groups.

The emphasis in the area group, however, is, as the name indicates, upon the credit problems peculiar to given areas. Under this classification are placed projects undertaking to bring forth the existing rural credit conditions and practices in a region, or the historical development of such conditions and practices. Studies of areas where agriculture is in a state of depression, with the idea of ascertaining the causes and removing them, are included here. Closely akin to the last named type of study is that which undertakes to perform a similar service for areas of the marginal type like the cut-over lands in our north central states. Space does not permit an appraisal of the sources and methodology suggested for each type of project. Suffice it to say, that on the whole, the sources are as complete and well selected as the respective topics permit at the present time, and the method appears to be well adapted to the type of inquiry.

The institutional approach involves all of those projects which place the emphasis upon enterprises designed to provide credit for agricultural use. Here we find analyses of the agricultural credit corporation, the livestock loan company, mortgage companies, national farm loan associations, insurance companies, credit extension by storekeepers, country banks, and other enterprises.

The third group concerns itself with special types such as short-term credit, intermediate credit or credit extended to tenant farmers. Group D involves the less tangible but basically more important studies of special aspects of rural credit such, for example, as (a) appraisal and (b) the risk factor. The introductory statement for this section mentions appraisal but no projects are outlined for this highly important aspect of farm credit. Some of the projects that are listed seem petty in comparison with it. In the opinion of the reviewer, the development of a scientific yet easily workable system of appraisal is one of outstanding needs in the field of agricultural credit. [A separate report is planned on "Land Values." EDITOR.]

The commodity approach which characterizes the fifth group has its largest appeal in single enterprise regions such a cattle country, potato area, and the like. Into the last group are placed all other projects such as a study of interest rates, indexes of changes in the agricultural credit situation, relation of public credit to agricultural policy, and interdistrict credit granting.

While some account is taken of the fact that the financial problems of American agriculture are closely interwoven with those of business and with general world conditions, specific projects for the study of these important relationships do not form a part of this report on research in agricultural credit. The present plight of agriculture in the face of a vastly improved credit machinery indicates how important a rôle these external factors play.

*G. W. Dowrie*

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*Rural Vermont: A Program for the Future*, by 200 Vermonters. Burlington, Vermont: Vermont Commission on Country Life, 1931. 385 pp. $1.50.

When Henry C. Taylor went to Vermont three years ago to direct the program of the Vermont Commission on Country Life, he conceived a unique and forward-looking method of procedure. His plan contemplated a combination of the methods of research, of extension organization and procedure, and the utilization of the best rural leadership in the State of Vermont. His plan was peculiarly adapted to the character of New England people and the democratic traditions of rural New England.

In the development of his plan the position of importance was occupied by a working committee of 200 under the chairmanship of John E. Weeks, a former Governor of

the State. Behind this committee was the guiding spirit of Henry C. Taylor and his philosophy of rural life organization. The extent of his contributions in the development of the work of the committee, only the members know.

As the philosophy of the approach to this problem has been discussed with the writer by Dr. Taylor, the report is but an incident in the process by which the people of Vermont, under the leadership of 200 of their best citizens, have made a comprehensive appraisal of their problems of rural life, faced these problems, and laid the foundation for an evolving program. The essential work has been that by which the people of Vermont and their leaders have become conscious of their rural life problems and have come together on a common program for their solution.

The report itself, if read carefully, has individuality. It suggests the loyalty, courage, love of home land, the vigorous self-dependence, the disinterested spirit of community service and the hard common sense of the people behind it. It presents a picture oftentimes of difficult conditions, of under-financed public institutions. It presents this picture with optimism; with constructive policies; with the resolution to do the best they can with what they have; to build the most satisfactory basis for rural life and culture in the coming decades. There is neither boasting nor whining, neither a parading of ills nor an attempt at self-advertisement, but rather an intelligent facing of the facts of their situation—both good and ill—in an effort to lay the foundations of the best possible rural life.

The chapters of the book deal with the analysis of the problems of population, of the quality of population, of agriculture and of home and community life, of recreation, of medical and sanitary service, of education, government, and religion. They are peculiarly interested in Vermont as a seedbed of fine citizenship and high grade men and women. They give thought to the conservation of the best traditions and ideals of earlier generations of Vermont people.

Each chapter of the book is a product of the work of a separate sub-committee. The sub-committees had research funds at their disposal and utilized and integrated the results of other available research. Each chapter, therefore, contains the statement of facts upon which are built the conclusions of the committee. The conclusions are constructive, restrained, and apparently the result of careful thought on the part of their sponsors. Among the surveys which were made as a basis for the work of the committee may be included a generalized soil and topographical survey of the State, a climatic survey, a land utilization survey of typical areas in sub-marginal regions, an inventory of the facilities of the State for serving summer residents, and an analysis of the economic and social effects of summer residents, and also a survey of the recreational opportunities available to rural children and their use. In fact, where a factual basis for conclusions was not easily available, the sub-committees have had funds for making the necessary surveys and other studies on which to base certain of their conclusions.

*Rural Vermont*, if one catches the spirit of the work, stands for a relationship of rural social research, rural extension education and the rural leadership of regions considerably different from that contemplated by the administrators of research and extension in the bureaus at Washington. The center of gravity in the formulation of policies is transferred to state committees made up of the best minds among the interested citizens of the State. The research work done grows out of their needs; the policies formulated are theirs, and the extension educational programs essential to the achievements of their programs flow from their leadership.

Behind this conception and its execution there must be a guiding mind and

hand. In this case we strongly suspect it is that of Dr. Taylor. We doubt, however, whether success could have been achieved except in a milieu like that of northern New England where an independent spirit of mind, intellectual tolerance, a high level of intelligences, democratic tradition, and loyalty to the best ideals of a past of which the people are proud, have combined to create a setting for this forward-looking attack on the problem of rural life.

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***Essays on Research in the Social Sciences,*** papers presented in a general seminar conducted by the Committee on Training of the Brookings Institution, 1930-1931. Washington: The Brookings Institution, 1931. 194 pp. $2.00.

Are the so-called "social sciences" really sciences? If so, wherein lie their limitations as fields for scientific research? Can orderly classification or relationships and predictable reactions be developed or is the whole social order as unsampleable as a time series and as unpredictable as the vagaries of woman's dress? What progress are we making toward a better coordination and a clearer defining of the various "social sciences"? These are questions which every "scientifically-minded" student of the social sciences must have asked himself many times. The essays represent an attempt to throw light on some of these problems and on the philosophy back of method in social science research. That they have contributed to this end, and that they merit thoughtful reading by students of the social sciences will be agreed. That they fail to satisfy both in their coordination of focus on the problems and in the rigorousness of their reasoning is likely also to be a justifiable reaction as the last page of the book is turned. No doubt it is yet too early for an adequate appraisal of the relationships here discussed else so distinguished a group of thinkers would have brought us nearer to a balanced and integrated treatment of these associated fields of study. Probably such a balance can come only through the careful sifting and fitting of the various viewpoints by the hands and mind of one master workman.

The introductory statement "Whither the Social Sciences?" signed by Leverett S. Lyon, Isador Lubin, Lewis Meriam, and Philip G. Wright raises the question as to why the conclusions and findings of the social scientists are not accorded the implicit faith and general acceptance which similar pronouncements of the natural scientists elicit. They conclude that "There is no general conviction that social sciences are sciences at all. . . . Not only is the possibility of absolute prophecy doubted, but even that of contingent prophecy, that is, the foretelling of what will happen if certain forces are set in action. . . . The natural sciences attained their high position largely through the discovery and application of scientific method. By observing certain rules of formal logic and certain canons of induction, by carefully controlled methods of observation and experiment, by the exercise of the imagination in creating hypotheses, and by a relentless skepticism in verifying them, men in their quest for truth in matters relating to the material world have attained as near to certainty as is perhaps possible for the human understanding.

"The major question is, can something like the relative certainty of the conclusions we arrive at relative to the physical world be attained in the world of mind? To what extent can the same methods which have led to such triumphs in the one field bring comparable results in the other? If the same methods are not applicable, are there others which may be effective? . . .

"It was in the hope of throwing further light on the question of the validity of

the social sciences and on questions of method in the so-called disciplines that the course of lectures reproduced in this volume was organized."

The first essay of the series, "What is Science?," by W. F. G. Swann, is a suggestive if somewhat inconclusive treatment. All of the essays are more interesting for their numerous thought-provoking, epigrammatic statements than as balanced summary discussions of the subject matter: for example, Swann's comment "Each individual or class of individuals is apt to have certain criteria, usually unconscious ones, which determine for him whether or not he will be satisfied with a certain type of theory. If the theory starts from his own 'somewhere,' all is well; but, if it starts from your 'somewhere' then he is not happy and is apt to regard it as artificial. His own 'somewhere' is usually determined by the type of investigations which have interested his fellows and himself in particular in the immediate past." Again, a later comment: "In the whole realm of mathematics, there are little oases rich in regularity, rich in law content. One of the functions of the mathematical physicist is to find one of these little oases in which there is one-to-one correspondence between the essential elements in mathematics and the fundamental facts of nature. The finding of such mathematical oases provides the means by which the consequences of the various physical facts in relation to each other may be traced. They may more readily be traced through the processes of mathematical relationships than by mere intuitive thinking about them without the aid of this tremendously powerful means of systematizing our thoughts provided by formal mathematical reasoning."

The second essay, "The Possibilities of Social Study as a Science," by Walter Wheeler Cook, approaches the matter from the viewpoint of one whose principal study has been in law. One of the most interesting features lies in the author's distinction between fact judgments and value judgments. The fact judgment, or descriptive statement, predicts on the basis of the immediate "given," what would happen if one were to do so and so. Value judgments on the other hand have to do with the ends to be attained, in other words, the line of action to be pursued assuming that the results of such action have been determined.

A question is raised concerning the validity of the assumption that facts are facts regardless of who is handling them. In the words of Cook's comment, "Two things should be pointed out. One is that we cannot describe any particular 'given,' the 'brute, raw event,' as such, because the moment we attempt a description we necessarily select from it only certain aspects for consideration; we qualify it by bringing it under some category or other; we relate it in particular ways, depending upon our interests at the time.

"The other thing to be noted is that the 'given' as we are conceiving it is an abstraction; but if we assume, as I think we must, that all thought deals with abstractions which cannot exist in isolation, this is no objection . . . the important question is whether this abstracted element, the 'given,' is genuinely to be discovered in experience."

The third essay, "Method in the Study of Political Science as an Aspect of Social Science," by Charles A. Beard, attempts to delineate the field of political science and to narrow it down to a workable concept suitable for scientific study. In his closing comment he says ". . . we must work more zealously and carefully than ever with the immediate substance of political science, we can only illuminate it and give enduring form to conclusions respecting it by constant and laborious effort to relate it to the widest possible periphery of knowledge, understanding, and actuality. Even the smallest effort to do this contributes to the fruition of great efforts. When an age is characterized by similar efforts among many thinkers, a concentration and

enrichment of thought takes place, and at the proper moment some Newton, making use of all fragments around him, kindles a light that illuminates the heavens. Even the smallest of us can help to prepare the way for the higher generalization; indeed it is certain that unless we work wisely and laboriously at our tasks, the intellectual heritage for truly penetrative judgments cannot be supplied."

The fourth essay, "The Contribution of Economics to Method in Social Science," by John Maurice Clark, represents an able plea for the methods of deductive thinking as a tool in economic analysis. Professor Clark holds that in the otherwise desirable widespread development of inductive study in recent years a loss has occurred through undue minimization of the usefulness of deduction as an analytic tool. His treatment is well balanced and suggestive.

The fifth essay, "Legal Tradition and Social Science Method—A Realist's Critique" by Karl N. Llewellyn, gives particular emphasis to what is called "the threat of the available"; in other words the tendency in social science study "first to turn to the most available material and to study that—to study it exclusively—at the outset; second, having once begun the study of the available, to lose all perspective and come shortly to mistake the merely available, the easily seen, for all there is to see."

A second comment deals with the "threat from apparent simplicity. The urge to find things simple, to establish their simplicity, has panic power." A strong case is made for study of both what is and what ought to be, but with very significant emphasis on the need for clear thinking as to which is being dealt with and for clear emphasis when a change is made from discussing what is to discussing what ought to be.

The philosophy of this essay is of particular significance and interest to students of the social sciences and its pages are filled with suggestive brief comments, especially those dealing with the distinction between handling the problems of law as a science and those dealing with it as an art.

The sixth essay, "Research in Psychology and Its Bearing upon the Social Sciences," by Madison Bentley, is somewhat of an apology for the present chaotic state of psychology as an aid to students of the social sciences and a plea for patience in arriving at workable, cooperative relationships.

The seventh essay, "History: Mistress and Handmaid," by Arthur M. Schlesinger, deals in a stimulating way with the nature of recent trends in historical research and the possible usefulness of these in the other social sciences.

In the eighth essay William F. Ogburn discusses "Considerations in Choosing Problems of Research." Certain brief extracts from his comments are of interest, for example: "Certainly one wants to raise the question in a very realistic manner as to whether a solution can be found for a problem and not simply to take the very optimistic point of view of believing that anything can be done by taking thought and working hard. . . . So in choosing problems for research, more satisfactory scientific work may be expected with individual items of knowledge or particular hypotheses, rather than with some large descriptive study, comprising many phenomena or many relationships."

The final essay, by William I. Thomas, deals with the "Relation of Research to the Social Process."

As a whole the book will be found more significant in a second reading than in the first. While it does not present a comprehensive treatment of the subject matter indicated it warrants careful reading by all students of the social sciences.

*M. R. Benedict*

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*Concentration of Control in American Industry*, by Harry W. Laidler. New York: Thomas Y. Crowell Co. 1931. 518 pp. $3.75.

This volume seeks an answer to the question: "Are we living in an era of 'rugged individualism,' or of monopolized industry, or are we in some twilight zone between the two extremes?" For purposes of this quest an impressive array of evidence is presented on the existence of concentration in many fields of enterprise and the trend of concentration in each is traced with particular emphasis on its development in the post-war era.

In the field of natural resources concentration is found in anthracite and bituminous coal, iron, copper, lead, zinc, nickel, bauxite, sulphur, oil, and developed water power.

Eight companies closely affiliated with railroads control 80 per cent of the recoverable tonnage of anthracite and four produce one-half of the total annual output. Thirty producers of bituminous mine one-third of the total output and own more than one-third of the bituminous deposits.

The United States Steel Corporation owns from one-half to three-fourths of the total iron reserves of the country and two-fifths of its steel-manufacturing capacity. This company and Bethlehem Steel control 52 per cent of the steel-making capacity, and nine companies control more than 80 per cent.

Of the non-ferrous metals, four companies control nearly one-half of the copper reserves, a few large companies dominate lead and zinc production, and one company, International Nickel, owns more than 90 per cent of the nickel resources of the world. The Aluminum Company of America practically has a monopoly in the domestic market of bauxite, the source of aluminum. Two companies own most of the sulphur deposits of the world.

The degree of concentration in the ownership of oil and timber reserves was found impossible of determination because of the secrecy of oil and timber companies regarding their business. But in the refining of oil, the Standard Oil group is dominant, controlling approximately one-half of this field, and in the production of crude petroleum, five companies provide about one-third of the total output.

Six companies were found to control about one-fourth of the developed water power of the country. Twenty companies control more than one-half.

In the field of communication, the American Telephone Company controls 80 per cent of the telephone service, and the Western Union Telegraph Company, 75 per cent of the telegraph service. The Mackay, International Telephone and Telegraph, and Radio Corporation interests are dominant in radio and cable communications.

In transportation, although many steam railroad lines are operating, a high degree of concentration in their control exists through stock ownership, interlocking directorates, and latterly, investment trust holdings. The Interstate Commerce Commission, under the provisions of a law favoring consolidation, is also trying to group the railroads into a limited number of systems. Electric street railway lines are being owned and operated, more and more, by the great electric power systems.

In the electric, gas, and water industries, four electrical groups produce most of the electricity. The Standard Oil and a few other interests dominate the field of manufacture and distribution of gas, and a strong movement toward concentration has appeared in the supplying of water.

Great concentration exists in a number of divisions of manufacturing. Two companies manufacture three-fourth of the automobiles sold in the United States. Two packers supply one-half of the meat entering interstate commerce. One company does a large proportion of the sugar refining business. Four companies supply one-fourth of the bread. One company is dominant in biscuit production, three in cereal produc-

tion, and two in the distribution of milk, butter, and eggs. One company is supreme in the radio and broadcasting industries, and three are dominant in the motion picture industry. The manufacture of electrical supplies and equipment, locomotives, freight and passenger cars, agricultural machinery, shoe machinery, elevators, radiators, office and store supplies, aluminum utensils, sewing machines, matches, furniture, chemicals and rubber goods is also highly concentrated.

In examining the question, "Have we a money trust?", Dr. Laidler found extreme concentration in the field of finance. Recent mergers of New York City banks have resulted in the rise of three institutions, each of whose aggregate resources is two billion dollars or more. One per cent of the banks own 46 per cent of the total bank resources of the country. Eliminating duplications, the banking house of Morgan and its allies hold directorships in corporations with net assets of around seventy-four billion dollars, or one-fourth of all corporate assets.

Some evidence of growth of concentration is found in agriculture. Decreases in the number, and increases in the size of farms are noted as is the presence of occasional "factory" "bonanza" or "chain" farms. Evidence of a trend from individualism and toward group action is found in the growth of cooperative associations and the creation of the Federal Farm Board. Also many things, tool making for example, once done on the farm are now done in the giant factory. But, nevertheless, the industry in which concentration has appeared least is agriculture.

The facts of concentration as reported by Dr. Laidler were assembled from recognized sources. But because of the number of industries treated, and the unavailability to the author or to anyone of the most significant material on combination, the presentation gives a somewhat fragmentary picture of the control phase of the industrial scene. Nevertheless, it appears to the reviewer that the facts sustain the general conclusion of the book that concentration exists in American industry to an astonishing degree, and that its trend is toward increase rather than decline. However the reviewer believes that this conclusion would have been stronger had more attention been given to contrary trends or to possible early limits to concentration in certain industries, agriculture, for example.

A single chapter, much of which is a summary, contains such interpretation as is presented. This includes extremely brief observations regarding the advantages sought and obtained by combinations, their ownership and control, the character of competition in a régime of giant industry, the profit result of combination, and the relations of great enterprises to labor and to the public. As to the future, Dr. Laidler, with due recognition of other views and much restraint of his own, leans toward the Socialist position that, "the trust and combine movement is preparing the way for socialization."

To the reviewer, it appears unfortunate that this great mass of facts is leavened with so little of interpretation. He would like, for example, to know the relationship, if any, between concentration and business depression. How did it happen that unparalleled concentration in industry was succeeded by a depression of unparalleled severity? Surely concentration offers opportunity for a balancing regularization of production. Did other influences overcome this regularization, or was it present at all? Were the great leaders of the great business enterprises unaware of their powers and responsibilities? Did the pecuniary incentive lure them from the hard paths of executive duty into the dazzling ways of stock speculation? Or was the task with which they were faced too great for any group of men, whether acting singly or in concert? It is questions such as these which the reviewer would like to have answered in this book.

But in fairness to the author, it should be remarked that he intended his contribution to be primarily in the realm of facts, and that within the limits imposed by space and task he has worked to good purpose.

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*Jahrbuch der Gesellschaft für Geschichte und Literatur der Landwirtschaft,* eine Viertejahrsschrift. XXX Jahrgang, Heft 2/3. (The Yearbook of the German Society for Agricultural History and Literature, Quarterly, Vol. XXX, Part 2/3) Weimar, Gesellschaft für Geschichte und Literatur der Landwirtschaft, 1931. 50 pf.

In the last issue of the yearbook of this society, Dr. W. Seedorf, chairman since the death of the founder and former chairman, summarizes the program of the society in his obituary for the last chairman, the late Max Güntz. The society is trying to enlarge and improve the interest and knowledge of the German agricultural population for agricultural history. The society is working along the same lines as the Agricultural History Society of America with which Prof. Seedorf became acquainted on his last trip through this country.

The German society has succeeded in collecting important historical documents, letters, books and so forth related to the work of Albrecht Thaer, the "Father of agricultural sciences in Germany." These documents are now in the Albrecht Thaer-Archive which is one of the most important properties of the society.

The collecting of agricultural instruments, shovels, hoes, rakes and so forth, which was the basis for the work in unifying and standardizing agricultural instruments, has also been supported by the society.

The point of view of the German Society of Agricultural History is, as Prof. Seedorf states, that "farming is no business, but is more a manner of living." The main principle which leads the farmer in his work is, therefore, "not the desire for high labor income and large profits, but the care and the maintenance of the inherited farm." Of course, the farmer has to make use of all factors in the process of agricultural sciences.

The society has promoted the interest of administrative bodies in issuing documents of honor to those families who have owned their farms for a long period of time. To further this, honors have been granted by the Chambers of Agriculture both in Bavaria, Germany, and in Tirol, Austria, to those families who have lived on their farms for more than 200 years.

In addition, the society tries to support all efforts which are made in the field of historical research. One of the articles in the last yearbook reports on a recent study of the influence of the permanence of residence on the number of children in farm families in Hanover, which was made by the College of Agriculture at the University of Göttingen. A statistical study of 21,000 farm families indicates that those families who had held their farms for more than 200 years, reared more children than the average farm family. The influence of the size of the farm was negligible; the families of farms held for more than 200 years were larger than the average, regardless of the size of the farm. This study of one district indicates that as far as agricultural history is concerned, this kind of research is very important and should be extended to other provinces.

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***La Distribuzione del reddito nell' Agricoltura Italiana.*** (The distribution of Social Income in Italian Agriculture), by Giuseppe Tassinari: Piacenza, Federazione Italiana dei Consorzi Agrari, 1931. 299 pp. L. 45.

Among the various tendencies which are typical of modern Italy under the Fascist régime, the revival of interest in agricultural and rural questions is perhaps the most impressive. In all branches of agriculture, scientific and practical improvements, innovations, and increased activity are very noticeable. The interest of the government and of the general public, however, probably reaches its highest level in agricultural economics, a topic which formerly was largely neglected. A new school of agricultural economists in Italy has been developed, mainly under the guidance of Giuseppe Tassinari who was professor at the University of Bologna until last year. Being aware of the lack of reliable data on farm management practice in Italy, Tassinari made an attempt to collect figures on the basis of the farm accounts of a number of typical farms in all parts of Italy. In 1926 the first results of his farm management investigations were published.[1] The present study is an enlargement and continuation rather than a new edition of his earlier book. The number of farms studied has been considerably enlarged and there are now available organization and management data for sixty-five representative Italian farms. This number may not seem very high in relation to the extensive area and the extremely diversified farming conditions of the country. But the farms have been carefully selected and may be considered as typical for the more important agricultural regions of Italy. They vary in size from small fruit farms in Sicily, which rarely exceed a ten acre limit, to large estates of 4,000 acres and upward where cereal crops and pasture predominate. The systems of land tenure also differ greatly from one region to another and even in the same region different systems may be found side by side. Under the most varied natural conditions are to be seen small peasant proprietors, small share tenants, large scale tenant farmers working on a system of cash payments, and great land-owners farming extensively and employing hired labor. These different types of tenure are by no means clearly differentiated but, on the contrary, there is a remarkable tendency towards over-lapping of the various types.

The author starts with some introductory chapters on the concept of income, its distribution, and its significance for the individual enterprise. This introduction is followed by an outline of the investigations carried out with detailed explanations of the bookkeeping and recording methods employed. The main part of the book consists of monographs for the different farming types, which are arranged in geographical order. For each type a short general description is given, which is of value for the better understanding of the figures in the accompanying tables. The figures themselves are arranged in accordance with a uniform scheme. For each of the four years 1925-28, money values are given for capital invested, total and marketable production, expenditure other than the remuneration of the agriculturists of all grades, net returns, wages for manual labor, remuneration for administration and management, interest charges on total capital invested, return on capital, net income of landlord and tenant, and capital return less taxes.

The last part of the book is the most interesting, at least for those readers who are less familiar with the local conditions of the Italian countryside. The final chapters contain a synthetic and comparative study of the results obtained for each particular type of farm. The results may be summarized as follows: The land values, which could be determinated only approximately, differ enormously in the various

[1] Saggio intorno alla distribuzione del reddito nell' agricoltura italiana. Piacenza, Federazione italiana dei consorzi agrari. 1926. 179 p.

regions of the country. For citrus farms in the South and on the Islands, the land value per hectare (2.47 acres) reaches 150,000 liras, for vineyards in Sicily, 60,000 liras, for mixed farms n the Valley of the Po 20-30,000 liras and for large estates (latifundia) in the South, where cereals alternate with pasture, only 2-3,000 liras. During the period investigated land values showed a tendency to decrease, the rate of decrease varying between one-sixth and one-third of the 1925 values. The data for production are shown by three sets of figures, those of total, of marketable, and net production. The variations in total production from one region to the other are surprisingly high. While the returns for extensive cereal farms in the South seldom exceed one thousand liras per hectare, on citrus farms in Sicily or on the shores of South Italy the total product is mostly higher than 20,000 liras and in one case (a mandarine grove near Palermo) reaches 42,000 liras. As compared with the pre-war period, a general increase in total production is quite evident. The net returns, however, have not increased in the same proportion owing to the increase in the rates of wages for manual labor, which are much higher than the rates of increase for total and net production. The result is a remarkable change in the repartition of the social income among the various persons who cooperate in the productive process. This is true especially in farming systems which are based primarily on hired labor. An irrigated farm in Lombardy may be taken as a typical example. On this farm the proportion of laborers' wages to total social income amounted to 34 per cent, while the capitalistic net return was 61 per cent. During the period 1925-28, the corresponding figures were between 59 per cent and 72 per cent for wages and between 23 per cent and 36 per cent for net return. Quite different are the conditions with share tenancy farms, especially with the typical "mezzadria" (half-share) system. On these farms the distribution of income between share tenant and landlord tends to remain relatively stable. Landlord and tenant share equally in the benefit of the gains in favorable years, just as they share equally the hardships of a bad season.

On the whole, the four year-period investigated was decidedly a period of depression. The year 1927 appears to mark the lowest point, as shown from a comparison of interest returns on farm capital obtained in the various years. The amount computed for rent fluctuates widely, but in many instances, it is very low and occasionally even negative. But there is no doubt that the agricultural situation, which seemed serious enough during the four-year period studied, has deteriorated considerably since 1928 owing to the prevailing world agricultural depression.

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*Agricultural Marketing*, by Henry F. Holtzclaw. New York: The Ronald Press Company, 1931. 429 pp. $3.00.

The author has done a distinct service for teachers of undergraduate courses in agricultural marketing by bringing together much of the material that has only been available in the bulletins and circulars of various agencies, such as the United States Department of Agriculture and the state experiment stations. In addition, he has woven this material into a brief but comprehensive survey of marketing problems and practices.

The first seven chapters deal with principles of marketing, the next seven with the description of the marketing of various classes of agricultural products, the last eleven with a number of subjects such as storage, transportation, market risk, market prices, and marketing costs.

A feature of the book which is to be commended is the succinct discussion of trade

practices and methods of sale in the chapters on specific commodities as well as in the chapter on marketing fundamentals.

The book contains eighteen figures. These are well chosen with the exception of the trade channel charts taken from the Joint Commission on Agricultural Inquiry. The latter are needlessly complex; they confuse rather than enlighten the reader.

A few additions would have rendered the treatise more serviceable. A chapter on hay marketing, an appraisal of the Farm Board's operations, and the findings of the Grain Futures Administration might well have been included.

The principal criticism which the reviewer has of the book is on points in theory. In the discussion on demand manipulation (page 15) the author quotes Clark saying: "It is the province of demand manipulation 'to make the public buy more of the things it is accustomed to consume, to purchase other products than is its habit, to buy one article in preference to another or several others of the same general kind, or to patronize one vendor rather than another.'" This statement draws no distinction between trade promotion and the concept of a shift in the demand schedule. In the discussion of the operations of the California Fruit Growers Exchange (page 94) the reader is left with the impression that the 75 per cent control of the crop is primarily responsible for the favorable position of the citrus industry rather than an increase in demand. The definitions of orderly marketing (page 150) "distributing sales more or less evenly throughout the year," and of normal price (page 367) "the price which would exist if there prevailed a system of free and unrestricted competition," add to the confusion that already exists on the meaning of these terms.

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*Agriculture and the Business Cycle Since 1920: A Study in the Post-War Disparity of Prices,* by Clarence Alton Wiley. Madison: University of Wisconsin studies in the social sciences and history. No. 15, 1930. 237 pp. $1.25.

I

At the present time with industrial production 20 per cent below normal, with non-agricultural prices at a new low post-war level and with agricultural prices on a pre-war level, an explanation of the disparity between agricultural and non-agricultural prices in the immediate post-war period is of considerable interest.

In the study under consideration, which was completed in 1929, the author has considered the causes which were apparently responsible for this disparity, and has reached the general conclusions that: The most important factor in the agricultural price depression from 1920 through 1924-26 was relative agricultural overproduction. In order to secure an understanding of why Wiley arrived at this conclusion, let us consider his general argument.

II

In 1920 a marked downward movement in prices began as a natural result of cessation of a long period of international war and inflation. In this price recession, however, agricultural prices fell first, faster, and farther, and stayed down longer than non-agricultural prices. Why?

The best approach to the problem would seem to be an analysis of the actual situation—a consideration of the several supply and demand factors which were effective in making the post-war situation so unfavorable to American agriculture. Before beginning this detailed analysis, though, let us first consider (a) the typical adjustment of agricultural supply and demand to a changed economic situation and

(b) the effect of a former drastic post-war price-level change upon agriculture in order to secure a clearer understanding of the problem before us.

In general, agriculture is an industry in which adjustments in production in proportion to changes in effective demand cannot well be made within a short period of time. When the agricultural system is "geared" to produce at a certain production level, an immediate change to a different level is almost impossible. Especially is this true when the adjustment must be made downward since the fixed costs in agriculture are so high relative to current operating costs. Again, agricultural production is always subject to an uncontrolled variation due to the weather factor. Were the demand for agricultural production very elastic this inelastic supply situation would be of small concern, but, actually, the demand for the greater portion of the current agricultural production is very inelastic—an increase in supply can only be sold at a more than proportionate decrease in price.

To secure a historical example of how the inelastic nature of both the agricultural supply and demand schedules may affect agriculture, the agricultural production and price situation which prevailed in England in the fifteen-year period after the close of the Napoleonic War period may be considered. Through the Napoleonic period, English agriculture experienced a period of intense demand and high prices and, as a result, agricultural expansion was well under way when the war closed in 1815.

Within a short time, though, the situation was reversed. With a cessation of the war-time demand came an influx of foreign grain, a marked drop in all agricultural prices and, in time, much clamor about high "rates" and the necessity for government price stabilization. In the end, much poor land was abandoned and there was a marked resumption in livestock as opposed to grain farming.

When the European War began, the large armies meant fewer industrial and farm laborers and since the conduct of the war called for a plentiful supply of food, the import demands of the warring countries for agricultural supplies was materially increased. In addition to this increase in the quantity of agricultural goods demanded from a foreign source, the institution of submarine warfare upon allied shipping still further intensified the European demand for American produce since the United States and Canada were the closest sources of large quantities of export foodstuffs.

As a result, American agricultural prices rose well in advance of most non-agricultural prices and agricultural acreage and production began to expand. With the entrance of the United States into the War, the agricultural situation was still further improved.

But with the end of War came the end of the war-level demand and a complete reversal of the position of the agricultural commodities in the general price system. Due to the slow turnover of capital in the agricultural production process, the nature of farm production costs, the individualistic organization involved, and the uncontrollable weather factor, the farmers in the United States continued to expand production for some time after the end of the War.

This high level of American production, though, soon began to meet an increased competition from (1) the release of accumulated stocks by the federal government into the domestic market (2) the almost immediate revival of European agricultural production and (3) the restoration of European trade with countries like Argentine and Australia in which large surplus stocks of grain had been built up and in which a resumption of normal production programs became possible.

With agricultural production continuing unabated and with the production of competitive agricultural supplies increasing, the course of industrial production in

the United States and Europe became especially significant. For something more than a year after the close of the War, the European demand for American industrial and agricultural commodities, stimulated by reconstruction and financed by American interests, was maintained at the war level. But this short post-war spurt was soon ended and a major industrial depression set in.

In the United States, this depression reached its low point in 1921 but through the last half of 1920, through 1921 and well into 1922, production was below normal. In Europe and especially in England, which is the most important foreign market for American agricultural exports, the sub-normal period was of still longer duration. This subnormal industrial production, as compared with a supranormal agricultural production, necessarily meant a higher than normal ratio of agricultural goods to non-agricultural goods and consequently relative agricultural overproduction.

A final factor in the maintenance of the American production program was the easy money policy of the Federal Reserve Board which was designed to help float the Victory Liberty Loan and which over-stimulated optimism and crop production in 1920.

Together with the increased competition which came with the re-entry of such countries as Argentina, Denmark, New Zealand and Australia into international trade and the increased agricultural self-sufficiency of western Europe immediately after peace, there came a general decrease in world purchasing power. Credit was curtailed, complicated tariff barriers were erected and, in addition, the international exchange situation responded to the strength of the American dollar in such a way as to force foreign buyers into other markets.

Then too, the general per capita consumptive demands of the western Europeans which had been expected to return to their pre-war normals when peace came failed to readjust as expected. In fact, the substitution of the cheaper caloric foods (such as potatoes) for higher priced and more palatable foods and the dilution of wheat flour with the cheaper small grain flours continued.

Last, the decline in industrial production and, necessarily, general employment, meant that there were fewer goods to be exchanged for a maintained or increased volume of agricultural produce.

These, then are the actual supply and demand factors which interacted to bring about the "depressed" condition of agriculture which may be measured by the disparity between agricultural and non-agricultural prices indexed on a pre-war base. Since 1921, however, the purchasing power of the wholesale agricultural dollar has increased from 84 per cent of pre-war in 1921 to 100 per cent at the present (1928) due to (1) the unsocial and painful process of individual adjustment to the new price system, (2) the return of industrial production to normal and above-normal levels, (3) the effect of well managed cooperative marketing agencies and (4) certain concessions which the federal and state governments have made to agriculture.

In conclusion: The most important factor in the recent agricultural price depression was over-production relative to demand and the greatest immediate problem before agriculture is to secure a better adjusted production.

## III.

Although this explanation of the immediate post-war depression in agriculture through relative over-production is quite generally accepted by many agricultural economists, this is an interesting presentation of the conclusion supported by a detailed qualitative analysis. A more extensive analysis which considered the farm price

as well as the wholesale price situation would have perhaps been more interesting and more helpful but the question which was set in the first part of the study is well answered and no more can be asked.

Again, although there is a great deal of repetition of wholesale price and agricultural and industrial production indexes in the study, there is no more than a general theoretic analysis of the farmer's year-to-year response to price and at no place is there an indication that a second depression period such as has recently materialized was to be expected.

On the whole, the study is a good case study of a single economic period with reference to a special question based upon the current statistical data of the United States Department of Agriculture, upon Nourse's analysis of American agriculture in relation to the European market and upon Warren and Pearson's general analysis of the American agricultural situation. The conclusion reached is sound, I believe, but the presentation of the material could be much improved by condensation.

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*Agricultural Cooperative Marketing Law*, by C. K. Bullard. Austin, Texas: Gammel's Book Store, Inc., 1931. 473 pp. $7.50.

The rapid spread of cooperative marketing as applied to agricultural non-profit associations has encouraged the publication of several recent works dealing with this subject. The foregoing book does not pretend to be a treatise on the subject of cooperative marketing law, but rather a compilation of numerous decisions and statutes dealing with this subject.

A short introductory chapter deals with the economic background of cooperative marketing, refers to the statutes governing this subject, and briefly outlines the essential requirements of the charter, by-laws, organization agreement and marketing contract of agricultural cooperatives.

Thereafter, there is included a miscellaneous collection of court decisions dealing with agricultural cooperatives, the interpretation of their status, contracts, rights, and liabilities. These decisions are not grouped or arranged in any logical way, which detracts somewhat from their usefulness. The Cooperative Marketing Statute of Kentucky, which has been used as a model by several other states, as well as the text of the Federal Capper-Volstead Act, and the Federal Agricultural Marketing Act are quoted.

There is also included a set of forms outlining charters which may be used, forms of by-laws, organization agreement, marketing agreement, membership certificate and form of minutes of meetings. These forms are not sufficiently exhaustive to be of much practical benefit to the practitioner, but would be of assistance to laymen seeking to organize a cooperative without the advice of counsel.

The book is well indexed and this fact supplies some of the deficiencies resulting from a failure to arrange the reported cases in any logical order.

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*Der Realkredit der Deutschen Landwirtschaft* (Mortgage Credit in German Agriculture), by W. M. Frhr. von Bissing: Berlin and Leipzig, Walter de Gruyter & Co., 1930, 232 pp., RM. 9.

This book originated in connection with the activities of an inquiry committee appointed a few years ago by the Reichstag for the purpose of investigating the

existing conditions of production and distribution in Germany. It deals primarily with the development of mortgage credit in German agriculture from the stabilization of the currency in 1923 until the end of 1929, and represents a slightly changed report which the author, who is Privatdozent at the University of Berlin, made in his capacity as permanent expert of the division on credit of the agricultural subcommittee of the investigating body.

In order to gain a basis of comparison, the author, at the outset, briefly describes the organization and working of the German farm mortgage loan system before the War. He finds that the elaborate system of pre-war times was mainly supported by the constantly increasing accumulation of capital within the German economic sphere (p. 49), and that it persistently supplied the farmers with long-term credit at low rates and in sufficient quantities with little regard to changes in the industrial business cycle (p. 50).

War and inflation have severely affected the German agricultural mortgage credit situation, with the result that the years from 1923 to 1929 fall into a period of reconstruction which has not yet come to an end. During those years some fundamental organizational changes have taken place which, although not separately presented, are recognizable in those parts of the book which mention the various measures taken to recreate a cheap and sufficient supply of mortgage credit for German farmers.

After describing events in the two business cycles from November, 1923, until January, 1926, and from February, 1926 until the end of 1929, the author concludes that farm mortgage credit conditions have been mainly influenced by structural changes in the German economic system (p. 186). These structural changes are subsequently analyzed and divided into those of long duration and those of short duration. Special consideration is also given to cyclical and seasonal influences in that particular section of the book. The main root of the structural changes of long duration is seen in the reparation payments which, the author assumes, will not be eliminated or reduced to bearable proportions in the near future. They have impeded and slowed down the accumulation of new capital, so important in view of the destruction of monetary values through inflation, and have necessitated the attraction of capital from abroad, particularly for the purpose of helping the German agriculturists to adjust themselves to changed conditions (p. 197). A thorough elimination of the long-term structural changes and their consequences is considered to lie outside of the reach of German economic policy. But, it is thought possible to influence the temporary changes such as high costs of banking operations, competition between the housing industry, public agencies and agriculture for the scarce amount of available capital, and difficulties resulting from the revaluation of old mark debts through proper economic measures (p. 208). It is also held feasible to influence the effects originating from changes in the business cycle by means of an adequate economic policy, namely through "the constant observation of economic developments in order to discover their causes" and through "the adjustment of business activities on the part of agriculture and farm mortgage credit agencies to the changed character of the cyclical movements and seasonal fluctuations" (p. 208).

The main weaknesses of the present system of mortgage credit in German agriculture are said to be high interest rates and high costs of banking operations. To reduce interest rates is, in the opinion of the author, primarily barred by the economically uncontrollable long-term structural changes, particularly reparation payments. On the basis of the lack of capital and the insufficient accumulation of new capital resulting from these changes, the author draws the final conclusion that the national economic policy should take into consideration three main demands:

1. The small amounts of available capital must be concentrated in order to make them effective and thus decrease the rate of interest, especially on first mortgages.
2. The concentration of capital must be accompanied by a concentration of the capital distributors in order to reduce costs of banking operations.
3. A more rational use and application of available capital must be sought.

How these demands may be realized is subsequently set forth (p. 209-210). As far as the concentration of capital is concerned, it is interesting to note that, in 1928, the English Liberal Industrial Inquiry Committee suggested a similar measure to be taken for the benefit of British agriculture by means of the establishment of a Board of National Investment.

In addition, the book contains much valuable information on the development of German farm mortgages, the share of the various banking institutions in the granting of mortgage loans and other aspects of the subject. It is a profound study.

To continue to attract foreign capital is considered inevitable (p. 197). That France may eventually participate in supplying such capital is viewed as possible but yet uncertain. Under existing conditions, therefore, the author thinks that the rate of interest for farm mortgages will probably fluctuate between 7 and 10 per cent, according to business conditions (p. 226).

Cheap and sufficient long-term agricultural credit is very essential for the intensive type of agriculture existing in Germany. The moratorium on reparation payments which occurred since the writing of this book, and the prospects of a more satisfactory regulation of this burden will probably facilitate the future creation of capital and help to cheapen interest rates.

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# NEWS ITEMS

Previous issues of the JOURNAL (April, 1931, p. 355; July, 1931, p. 498) have contained announcements of the Special Courses in Agricultural Economics and Rural Sociology in Washington which were inaugurated a year ago under the auspices of the Social Science Research Council. This work began in the second semester of the academic year 1930-31 with three courses—one in Agricultural Prices and Price Analysis, by O. C. Stine; one in Principles, Problems, and Methods of Farm Organization and Management, by C. L. Holmes; and a seminar conducted by L. C. Gray and E. G. Nourse. These classes had seven, six, and nine registrations respectively.

In the first semester of the current year the committee announced the following courses: Taxation in Relation to Agriculture, by Eric Englund; Farm Mortgage Finance, by Russell C. Engberg and David L. Wickens; Marketing Agricultural Products, by W. H. S. Stevens; and a seminar in charge of E. G. Nourse, with the assistance of the other instructors.

The response has been gratifying. First semester registrations totaled fifty-five, ranging from nine to eighteen in the different classes. Making allowance for the registration of certain persons in more than one class, this means that thirty-eight individuals are participating in the work. Of these, seven are employed in the Bureau of Agricultural Economics, five in the Bureau of the Census, three in the Federal Farm Board, three at the University of Maryland, two are Agricultural Attaches, and one each is in the Bureau of Home Economics, the American Federation of Labor, the United States Tariff Commission, the National Rural Electrification Project, the National Education Association, the Department of Commerce, and so on.

This wide representation would seem to indicate that the courses are effectively meeting a need of advanced students in and around Washington. One person who has taken advantage of the courses has come to Washington expressly for the purpose of developing his thesis work here, and another has found it more feasible to accept employment here by reason of the fact that he can carry on work in the seminar and complete the thesis requirement for his doctorate elsewhere. Nearly one-half of all the registrants have definite plans for taking the doctor's degree here at American University or elsewhere, while numerous others have a more remote expectation of doing so.

In planning these courses one important motive was to establish a center to which candidates for degrees at universities in many parts of the country could come to Washington for a longer or shorter time to push forward research projects which would be strengthened by access to the unique data available in Washington archives and the counsel and assistance of specialists in various fields who are not otherwise available for the presentation of course work. It is the hope of the committee that such students and their advisors may become thoroughly conversant with the offerings being made in Washington and make use of them whenever it seems to the advantage of a particular student's training.

In the second semester of this year there will be a course in Rural Social Problems, by C. J. Galpin; National Land Problems and Policies, by L. C. Gray; Principles and Practice of Cooperation, by E. G. Nourse and A. W. McKay; and a seminar in charge of E. G. Nourse, with the assistance of the other instructors.

### *The American Institute of Cooperation*

The 1932 session of the American Institute of Cooperation will be held at the University of New Hampshire, Durham, New Hampshire. The courses will run from

July 18 to August 13 and the general sessions will be held throughout the first week in August.

The New England program committee has submitted a program, the salient features of which are outlined below:

The general sessions will open with a consideration of the changes in the organization and structure of the marketing system in the United States during recent years and an attempt at appraisal of changed conditions in the marketing field. General sessions and trade conferences will deal with the problems of adjustment to these changes.

The programs of two general sessions will be devoted to the structure of cooperation with reference to nation-wide organization of cooperative marketing and with reference to Federal Farm Board policies. Opportunity will be afforded to leading representatives of various points of view to appear on these programs. It is hoped that the discussion of this question will constitute a contribution to the sound evolution of farmers' cooperative marketing. General sessions will also be devoted to cooperative purchasing and the use of credit by cooperative associations.

The trade conferences will be held as usual. These will center around the marketing of dairy products, eggs and poultry, and fruits and vegetables.

A series of afternoon sessions running throughout the week will be devoted to the question of membership relations.

The introduction of the round table committee as a method of procedure has been decided upon for the 1932 sessions of the Institute. These round tables will be of two types:

1. Small committees appointed to study and analyze situations or formulate policies with respect to matters of concern to the cooperative movement. Round tables of this type will deal with "Production Control," with the "Adequacy of the Legal Sanctions of Cooperation," and with the place of the subject matter of cooperation in public school education. Another committee will work on the question of the application of the cooperative method to the marketing of local perishables.

2. Round tables having no specific functional problem as an objective, but which in effect are informal conferences of small groups interested in particular fields of discussion. The groups may or may not make reports to be published as a part of the proceedings of the Institute. The general round tables in this group will be concerned with cooperative purchasing, potato marketing and technical publicity problems.

The courses offered by the University of New Hampshire, running from July 18 to August 13 are as follows:

1. A teacher training course in the teaching of cooperative marketing in secondary schools.
2. An elementary course in the principles of cooperation.
3. A course in the business management of cooperative units.
4. An advanced course in the problems of dairy products and milk marketing.
5. An advanced course in cooperative marketing price policy.

### *William A. Schoenfeld Named Dean and Director Oregon State Agricultural College*

Dr. William A. Schoenfeld, for two years western representative of the Federal Farm Board and for five years northwest representative of the U. S. Department of Agriculture, has been elected dean of the School of Agriculture and director of the Agricultural Experiment Station, Oregon State Agricultural College.

Dr. Schoenfeld's teaching and experiment station experience began at the University of Wisconsin where he was executive secretary to the dean of agriculture. Later he was professor of rural economics and sociology at the University of Texas. For five years he was acting director of Extension in Tennessee. While a graduate student at Harvard, he was special lecturer at Massachusetts Institute of Technology.

With the United States Department of Agriculture Dr. Schoenfeld had extensive foreign service, and was, for a time, assistant chief of the Bureau of Agricultural Economics.

J. J. Anderson, E. J. Hopkins and Floyd Davis were appointed assistants in the Department of Rural Economics, Ohio State University, effective November 1. Mr. Anderson is engaged in a credit study, Mr. Hopkins in livestock marketing and Mr. Davis in poultry marketing research.

Rex E. Willard, who has been head of the Department of Farm Management for the Experiment Station and has been Extension Economist in Farm Management at the North Dakota Agricultural College since 1919, has resigned and taken up new duties as head of the Department of Farm Management and Agricultural Economics at the State College of Washington, Pullman. The change was made on October 15, 1931.

Mr. Willard's resignation at the North Dakota institution was the signal for authorities at that institution to undertake the consolidation of all of the work in agricultural economics (teaching, research, and extension work). That institution is now endeavoring to find the right individual to bring about the desired operating efficiency.

In the meantime, Mr. O. M. Fuller who has lately been in charge of the Market Information Service, but who was formerly associated with Mr. Willard in the Farm Management Department, has been placed in temporary charge of the Farm Management work, and Mr. R. F. Turner who was formerly Assistant Extension Economist, has been placed in charge of the Market Information Service.

The Department of Agricultural Economics of the University of Wisconsin recently participated in the preparation of an extended report for Governor Phillip La-Follette on "Statistical Summary of An Economic Survey of Wisconsin."

The Western Farm Economic Association announces that about two hundred copies of the mimeographed proceedings of the 1931 meetings are available. Copies may be obtained of Paul A. Eke, University of Idaho. The price is $2.00.

C. E. Allred, Agricultural Economist, University of Tennessee, is making an inventory of the cotton varieties being grown in that state.

S. W. Atkins, Assistant Agricultural Economist, University of Tennessee, is engaged on a study of the economic and social problems of the Appalachian Mountain area.

Prof. H. H. Bakken is making a survey of potato marketing in Wisconsin, with particular reference to the competitive factors of the retail market. Regional surveys of marketing of dairy products have been made this fall by members of the staff.

Dr. Roy A. Ballinger, Associate Professor of Agricultural Economics, Virginia Polytechnic Institute, has accepted a position as Associate Professor of Agricultural Economics at the Oklahoma A. and M. College, Stillwater, Oklahoma, effective on January 1, 1932. He succeeds Professor O. W. Herrmann.

P. B. Boyer, Assistant Agricultural Economist, University of Tennessee, is engaged on a study of the competitive position of Tennessee for cotton production.

C. M. Collins, Agricultural Representative, Nova Scotia Department of Agriculture, Lawrencetown, Nova Scotia, has been granted a year's leave of absence to take graduate work in Agricultural Economics at the University of Toronto.

Professor Jacques Faugeras of the Institute des Hautes Etudes Agraires, Paris, expects to spend some months in the United States early in 1933 lecturing on the economic aspects of European Agriculture.

Mr. T. L. Gaston, Assistant Professor of Agricultural Economics at the University of Idaho, resigned on September 1 to accept the position of Extension Economist in Farm Management at the Mississippi A. and M. College. Mr. H. A. Vogel was appointed to fill the vacancy.

Prof. H. C. Grant has been appointed Acting Head of the Department of Economics and Sociology, Manitoba Agricultural College, Winnipeg. Andrew Stewart has also been appointed to the staff to assist Prof. Grant.

G. H. Hatfield, Assistant Agricultural Economist, University of Tennessee, is making a study of the movement of cotton between counties before ginning.

Prof. B. H. Hibbard will devote his time during the coming semester and summer session to research on the tariff for agricultural products. He will be on leave of absence.

Prof. Asher Hobson, who recently became a member of the Agricultural Economics Department in charge of the marketing division at the University of Wisconsin will give a course the coming semester on "International Agricultural Relations." This course is a follow-up of the course "International Trade in Agricultural Products," introduced last year and given by Marvin A. Schaars.

J. W. Johansen, formerly of the Field Service Department of the Sun-Maid Raisin Growers of California, and more recently a graduate student in the Department of Agricultural Economics at the University of California, has accepted a position as Extension Specialist in Farm Finance and Rural Organizations at North Carolina State College of Agriculture and Engineering at Raleigh, North Carolina.

Mrs. Dorothea D. Kittredge who is on leave this year from the University of Minnesota, is resigning. She is moving to California where her husband, Dr. Kittredge, has accepted a position in forestry at the University of California.

Mr. J. B. Kohlmeyer has returned from a year of graduate study at Cornell University to resume his teaching duties with the Department of Farm Management and Rural Economics at Purdue University.

Mr. H. W. Leonard has been added to the staff of the Department of Farm Management and Rural Economics at Purdue University to continue the study of the economic phases of rural electrification in Indiana. He takes the place of Mr. P. F. Aylesworth, who is now at Michigan State College. Mr. Leonard graduated from the School of Agriculture at Purdue in 1921 and has since divided his time between farming and teaching vocational agriculture.

R. P. Longley of the Nova Scotia Department of Agriculture spent some time in the Agricultural Economics Branch working on a project conducted jointly by the Agricultural Economics Branch of the Dominion Department of Agriculture and the Nova Scotia Department of Agriculture.

T. W. McBride, Agricultural Economics Department, University of Tennessee, is making a study of selling cotton in the seed in Tennessee.

Mr. Albert Mighell, Research Assistant in the Iowa Agricultural Experiment Station, has returned from a leave of absence, spent at the University of Minnesota in study for his doctor's degree.

Prof. W. P. Mortenson will be on a leave of absence from the University of Wisconsin during the second semester. He will attend courses at Harvard University.

Mr. W. G. Murray, Associate Professor of Agricultural Economics, has returned to Iowa State College after a year's leave of absence. Mr. Murray was engaged in graduate work at the University of Minnesota while on leave.

Dr. J. T. Sanders, of the Oklahoma A. and M. College, has been on leave this past semester making an economic survey of the cotton industry for the Metropolitan Life Insurance Company of New York City.

Mr. Heinrich Stippler has recently joined the staff of the Giannini Foundation on a temporary appointment for the purpose of aiding members of the staff in translating and interpreting parts of the German literature in Agricultural Economics. Mr. Stippler is a graduate of the Landwirtschaftliche Hochschule at Berlin and has spent the last two and one-half years in Saskatchewan, Canada, and at Bozeman, Montana.

Prof. H. R. Tolley of the University of California spent most of November and December at Harvard University editing the handbook, *Research in Farm Management, Scope, and Method.*

Mr. H. A. Vogel was appointed as Assistant Professor of Agricultural Economics at the University of Idaho on September 1, replacing T. L. Gaston. Mr. Vogel spent the year 1930-31 with the Institute of Land and Public Utility Economics at Northwestern University.

Mr. J. J. Wallace has accepted a position in a farm record association which has its headquarters in Cedar Rapids, Iowa. Mr. Wallace will have charge of the record work for over a hundred farmers. This association, recently formed, is the third that is now operating in the state.

Mr. P. P. Wallrabenstein has been appointed Assistant in the Department of Rural Economics of the Ohio Agricultural Experiment Station. Mr. Wallrabenstein takes the place of R. E. Straszheim who has resigned to enter the employ of the Crop and Livestock Reporting Division of the Bureau of Agricultural Economics.

Dr. David Weeks was granted a leave of absence from the University of California from January 1 to June 30, 1932. He will take charge of the work in Land Utilization at the University of Nanking at Nanking, China.

Prof. George S. Wehrwein is making a farm credit study in five selected areas of Wisconsin, with particular reference to the farm mortgage situation.

Mr. George Westcott has been appointed Extension Assistant in Farm Management at Iowa State College. During the past year, Mr. Westcott took graduate work with the Agricultural Economics Department at Iowa State College.

Arthur Williams, Agricultural Economics Department, University of Tennessee, is engaged on a study of cotton warehousing and storage in Tennessee.

## TWENTY-SECOND ANNUAL MEETING OF THE AMERICAN FARM ECONOMIC ASSOCIATION

The twenty-second annual meeting of the American Farm Economic Association was held in Washington, at Hotel Willard, December 28-30, 1931.

The first session convened at 10 A.M. on December 28. At this session, the following committees were appointed by President O. C. Stine:

*Nominations*—T. P. Cooper, L. C. Gray, E. G. Nourse, I. G. Davis, A. G. Black.

*Resolutions*—H. R. Tolley.

*Audit*—J. I. Falconer, O. B. Jesness.

In the absence of T. P. Cooper, Dr. L. C. Gray served as Chairman of the Committee on Nominations.

The business meeting of the Association convened at 9:15 A.M. December 30. The minutes of the previous meeting were approved as printed in the JOURNAL for January, 1931, page 196.

The report of the Secretary-Treasurer was read and accepted. The report of the Auditing Committee was read and accepted. The report of the Resolutions Committee was read and the following resolutions were adopted:

*Whereas,* the outlook reports issued in recent months by the United States Department of Agriculture have contained practically no statements concerning the outlook for farm products, and practically no statements that will aid farmers in deciding what readjustments in production will be most advantageous; and

*Whereas,* the Federal outlook reports have a vital relation to the economic research and extension programs of all the state colleges;

*Be it resolved,* that the American Farm Economic Association request the Secretary of Agriculture and the Chief of the Bureau of Agricultural Economics to return in their outlook work to the policy which has been followed in former years of preparing and issuing reports representing interpretations of data with the best judgment of the outlook workers of the Department concerning the outlook and market prospects for the different agricultural commodities for the purpose of aiding farmers in making the readjustments in production that will be most advantageous to them.

*Be it further resolved,* that the Secretary of Agriculture and the Chief of the Bureau of Agricultural Economics be asked to

give this request immediate consideration and to inform the agricultural colleges of the action taken on it in sufficient time for the agricultural colleges to take it into account in making plans for participation in the National Outlook Conference to be held in January, 1932.

*Be it further resolved,* that a committee of members of the Association be selected to present this resolution in person to the Secretary of Agriculture and the Chief of the Bureau.[1]

*Whereas,* the type-of-farming classifications and tabulations being made by the United States Bureau of Census in connection with its analysis of the returns of the 1930 Census of Agriculture will be of great aid to the Farm Economists of the United States in much of their research and educational work,

*Be it resolved,* that the American Farm Economic Association commend the United States Bureau of Census for including the classification by farm-types in the tabulations of the 1930 Census; and urge that the remaining state bulletins containing the type-of-farming tabulations be published as soon as possible, and that provision be made for a similar classification and tabulation in connection with future censuses of agriculture.

*Be it further resolved,* that a committee of two be selected from the membership of this association to present this resolution in person to the Director of the Census.[2]

*Whereas,* our outgoing secretary-treasurer, W. I. Myers, has rendered faithful and distinguished service during the last five years of growth of this association,

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[1] The committee selected by the Association consisted of W. E. Grimes of Kansas, Chairman, O. B. Jesness of Minnesota, G. W. Forster of North Carolina, V. B. Hart of New York, and H. E. Erdman of California.

The committee called upon Secretary Hyde and Mr. Olsen on the forenoon of December 30 and discussed the matter frankly with Secretary Hyde. He defended the Department's ruling on the ground that the present situation is so uncertain that forecasting with any degree of accuracy is impossible. He stated that the ban upon the interpretation of outlook reports by department workers was temporary. He further suggested that confidential interpretations might be sent to the proper workers in each of the forty-eight states.

The reply of the committee to these statements on the part of the Secretary was that the uncertainty of the present situation made it doubly important that the farmers of the nation have the best judgment of the competent experts of the Department concerning these matters. The Secretary was told that the farmers of the country would probably forgive the agricultural economists if they were wrong in their honest judgments as to the outlook, but that they would never forgive agencies responsible for the outlook if they knew that these agencies deliberately deserted their jobs at this critical time. He was further told that the confidential statement to forty-eight states would not be "confidential" in practice and that the same results would be secured as were secured at the Southern Outlook Conference where the Bureau representatives were at liberty to give oral interpretations. The state men attending this Southern Outlook Conference reported that the Bureau representatives seemed reluctant to give oral interpretations. This reluctance was probably due to the danger of being misquoted or misunderstood.

The Secretary made it clear that Mr. Olsen was in no way responsible for the situation, but on the contrary Mr. Olsen was doing everything possible to get the ban lifted. Since the above went to press we are informed that the Department's policy has been modified and that the interpretative outlook reports are to be continued as they were made prior to mid-summer of 1931. EDITOR.

[2] The committee selected consisted of Prof. H. R. Tolley of the University of California and Prof. W. D. Nicholls of the University of Kentucky. EDITOR.

*Be it resolved,* that the American Farm Economic Association extend to him its sincerest appreciation.

It was moved, seconded and carried that Article 4 of the Constitution and By-laws of the Association be amended to increase the number of Vice-Presidents from one to two.

The report of the Nominating Committee was read and in accordance with a motion, moved, seconded and carried, the Secretary-Treasurer was instructed to cast one ballot for each of the following officers for the year 1932.

President .....J. D. Black, Harvard University
Vice-President .....V. B. Hart, Cornell University
Vice-President ....C. L. Stewart, University of Illinois
Secretary-Treasurer ....Asher Hobson, University of Wisconsin

The program was carried out as planned. Although the seating capacity of the rooms assigned was inadequate for some of the meetings, the hotel arrangements were very satisfactory.

The attendance at the various sessions was as follows:

*December 28*

| | |
|---|---|
| Morning | 400 |
| Joint luncheon with Rural Sociology Section of the American Sociological Society | 85 |
| Afternoon | 200 |
| Evening | 250 |

*December 29*

| | |
|---|---|
| Morning joint meeting with the National Association of Marketing Officials | 200 |
| Annual luncheon | 75 |
| Afternoon round-table Teaching Agricultural Marketing | 100 |
| Afternoon round-table, Readjustments in Labor and Power on the Farm | 100 |
| Joint dinner with the National Association of Marketing Officials and Farm Hands Club | 125 |

*December 30*

| | |
|---|---|
| Morning Joint meeting with the Amerian Statistical Association | 150 |
| Joint luncheon with the American Statistical Association, Prospects for Prosperity | 300 |
| Afternoon | 150 |

At a meeting of the Executive Committee, it was decided:

1. That the funds of the Association be invested in United States bonds.
2. That one copy of the JOURNAL be sent to each contributor at the discretion of the editor.
3. That at least 350 copies of the JOURNAL should be printed in addition to the regular mailing list.
4. That the editor be permitted to increase the size of the JOURNAL to 800 pages for the year 1932.
5. That a list of members be published as of July 1.

The reports of the Secretary-Treasurer and of the Editor are appended.

The meeting was adjourned at 10 A.M.

W. I. MYERS *Secretary*

## *Report of the Secretary-Treasurer*

Statement of receipts and expenses for the year ending December 20, 1931

RECEIPTS

| | | |
|---|---|---|
| Receipts from dues | | $5,037.27 |
| Back numbers of the JOURNAL | | 215.47 |
| Interest on balances | | 245.24 |
| Total Receipts | | $5,497.98 |

EXPENSES

| | | |
|---|---|---|
| JOURNAL OF FARM ECONOMICS: | | |
| Volume XII, October issue including reprints and index | | $ 688.49 |
| Volume XIII, 4 issues | $2,630.93 | |
| Reprints for authors | 302.89 | |
| Total | | $2,933.82 |
| Postage and envelopes | | 62.40 |
| Stationery and office supplies | | 28.50 |
| Badges for members | | 6.80 |
| Programs and postage 1930 meeting | | 73.16 |
| Joint expenses, 1930 meeting | | 28.51 |
| Expenses of Editor and Secretary-Treasurer at 1930 meeting | | 273.90 |
| Telegrams and miscellaneous | | 5.83 |
| Total Expenses | | $4,101.41 |
| Excess of receipts above expenses for year | | $1,396.57 |
| Balance, December 20, 1930 | | 5,392.11 |
| Balance, December 20, 1931 | | $6,788.68 |

*Invested as follows:*

| | |
|---|---|
| Checking account as per bank statement | $1,178.05 |
| Less cancelled check not yet returned | —70.41 |
| Checking account, net | $1,107.64 |
| Savings account at Ithaca Savings Bank | 181.04 |
| Income Shares, Ithaca Savings and Loan Association (5%) | $5,500.00 |
| | $6,788.68 |

As a result of the year's operations, the Association shows an increase in cash of $1,396.57. Included in the expenses of this year are the costs of printing the October, 1930 issue of the JOURNAL which combined with reprints and indexes involved an expenditure of $688.49. The excess of receipts attributable to this year's operations is $2,085.06, the best year from a financial standpoint in the history of the Association. There are no bills outstanding except for expenses in connection with the present annual meeting.

Receipts for 1931 show an increase of $1,013.46 above those of the preceding year, due to an increase in membership.

Expenses attributable to the year 1931 show an increase of $168.44 above those attributable to the previous year, largely due to an increase in the cost of printing the JOURNAL. From 1,200 to 1,250 copies of each issue of the JOURNAL were printed in order to maintain a generous reserve to meet the requests for back issues from new members.

The total number of members on December 20, 1931, was 1,001 as compared with 943 on the same date in 1930. There were 71 delinquents as of December 20, 1931, as compared with 72 as of December 20, 1930. The necessity of sending out repeated bills for overdue membership dues adds considerably to the work of the Secretary-Treasurer's office.

Classification of membership as of December 20, is as follows:

| | December 20 1930 | 1931 |
|---|---|---|
| Individuals | 650 | 695 |
| Libraries in the United States | 123 | 126 |
| Corporations in the United States | 56 | 47 |
| Libraries in other countries | 101 | 124 |
| Foreign corporations | 13 | 9 |
| | 943 | 1,001 |

The ten leading states in total membership are:

| | December 20 1930 | 1931 |
|---|---|---|
| District of Columbia | 112 | 115 |
| New York | 76 | 80 |
| Illinois | 71 | 60 |
| California | 35 | 42 |
| Ohio | 29 | 31 |
| Indiana | 23 | 25 |
| Minnesota | 21 | 23 |
| Pennsylvania | 18 | 21 |
| Wisconsin | 19 | 21 |
| Iowa | 19 | 18 |

There has been a gratifying increase in the number of individual members and in foreign libraries. The JOURNAL now goes regularly to 36 different foreign countries. The leading countries in membership are:

| | December 20 | |
|---|---|---|
| | 1930 | 1931 |
| Canada | 32 | 37 |
| Japan | 29 | 37 |
| U.S.S.R. | 26 | 35 |
| British Isles | 35 | 30 |
| Germany | 14 | 19 |
| South Africa | 9 | 10 |
| South America | .. | 8 |

In submitting this report of the fifth and final year of service as Secretary-Treasurer of the Association, the writer wishes to express his appreciation of the cordial cooperation of a large proportion of the members of the Association and especially of the State representatives to whom is largely due the credit for the increase in membership. In the past four years, during which active membership in the Association has been on a $5.00 basis, the number of active members has increased from 644 to 1,001. However, in December, 1927, there were 131 associate members which gave a total membership of 775 as of that date.

The cash resources of the Association have increased from $424.91 on January 1, 1927, to $6,788.68 on December 20, 1931. This gain represents considerably less than the cost of services which have been rendered free of cost to the Association by the institutions with which the editor of the JOURNAL and the Secretary-Treasurer have been associated. A continuation of the recent rate of financial progress for several years more will be necessary before the Association will be able to pay for the clerical services now contributed free of cost by the institutions with which the officers are associated.

Respectfully submitted,

W. I. MYERS, *Secretary-Treasurer*

## *Report of the Editor of the Journal*

A comparison of pages in the JOURNAL during 1931 with preceding years would be misleading because of a change in width of page and closeness of lines. The change was scarcely noticeable to our readers, yet made a noticeable saving. On the January issue for which the printer made a comparison the saving was estimated at 11.4 per cent in pages or 6.4 per cent in cost.

The papers presented at last year's annual meeting totaled 326 pages, as compared with 294 pages in 1930,—an increase of 32 pages in spite of the change in type. However, the discussions with one exception were not included because they were of an informal nature. An attempt was made at the annual meeting to have a stenographer report discussions, but this did not prove satisfactory and was discontinued after the first day.

There were 16 contributed articles, totaling 194 pages, as compared with 9 articles in 1930, totaling 135 pages.

The Notes Section under the editorship of Dr. Black this year had 26 notes totaling 55 pages, as compared with 28 last year, totaling 69 pages. I hope the coming year may show an increase in the number of contributions to this section. There must be a considerable number of ideas developing among the research men of the country which are worth recording but which do not at the moment justify longer articles.

The book reviews section this year contained 29 reviews, as compared with 15 the previous year. Some books were doubtless received which were not worthy, whereas others of real merit may have been omitted. In the latter class are several on which reviewers have not "delivered."

SUMMARY OF SPACE DISTRIBUTION IN 1931 JOURNAL

| | *Items* | *Pages* |
|---|---|---|
| Papers read at annual meeting | 28 | 326 |
| Contributed articles | 16 | 194 |
| Notes | 26 | 55 |
| Book reviews | 29 | 56 |
| News items | .. | 28 |
| Reports, index, etc. | .. | 16 |
| | | 675 |

The editor wishes to thank those who contributed articles during the year and to urge them to do even better in the future. He would like to urge that authors make sure that tables and graphs are in usable form. Several articles had to be returned during the year in order that authors might put the charts into usable shape.

As usual, a number of articles were returned. Most of these were from younger members of the group who had not taken the care to think through and satisfactorily organize the material they were presenting. The editor hopes the experiences will not discourage future effort.

The editor bespeaks the continued cooperation of Association members who have developed ideas to the point where they would make worth-while articles.

## *Program of the Twenty-Second Annual Meeting*

### MONDAY, DECEMBER 28

10:00 A.M.

SUBJECT: *The Agricultural Situation and Outlook*

CHAIRMAN: L. C. Gray, Bureau of Agricultural Economics

*Papers:* 1. "The Future of the General Price Level and Its Relation to Agriculture." F. A. Pearson, Cornell University. *Discussion leaders:* Morris A. Copeland, University of Michigan; M. R. Benedict, University of California.

2. "The Business Cycle and Its Relation to Agriculture." Alvin H. Hansen, University of Minnesota. *Discussion leader:* R. M. Green, Kansas State Agricultural College.

3. "The Outlook for Agriculture During the Next Ten Years." W. E. Grimes, Kansas State Agricultural College. *Discussion leader:* Lawrence Myers, Bureau of Agricultural Economics.

12:45 P.M. Joint Luncheon with Rural Sociology Section of the American Sociological Society

SUBJECT: *The Human Factor in Agriculture*

CHAIRMAN: John D. Black, Harvard University

*Papers:* 1. "The Human Factor from the Viewpoint of Farm Management." W. W. Wilcox, Bureau of Agricultural Economics.

2. "The Human Factor from the Viewpoint of Social Relations." T. B. Manny, Bureau of Agricultural Economics.

2:45 P.M.

SUBJECT: *Foreign Competition and International Financial Conditions Affecting the Demand for Agricultural Products.*

CHAIRMAN: E. G. Nourse, Brookings Institution.

*Papers:* 1. "International Relations and Financial Conditions in Foreign Countries Affecting the Demand for American Agricultural Products." Leo Pasvolsky, Brookings Institution. *Discussion leaders:* G. C. Haas, Federal Farm Board; W. R. Gardner, Federal Reserve Board.

2. "Foreign Competition in Agricultural Production, with Special Reference to Russia." Mordecai Ezekiel, Federal Farm Board. *Discussion leaders:* L. A. Wheeler, Bureau of Agricultural Economics; V. P. Timoshenko, University of Michigan.

8:00 P.M.

SUBJECTS: *Adjustments in Agricultural Production, Taxation, and Credit.*

CHAIRMAN: B. H. Hibbard, University of Wisconsin.

*Papers:* 1. "Adjustments in Agricultural Production Necessary in View of the Possibility of a Lower General Price Level and Reduced Foreign Demand for Agricultural Products in the Next Ten Years." A. G. Black, Iowa State College of Agriculture. *Discussion leader:* I. G. Davis, Connecticut Agricultural College.

2. "Adjustments in Taxation." Eric Englund, Bureau of Agricultural Economics. *Discussion leader:* M. S. Kendrick, Cornell University.

3. "Adjustments in Credit." Norman J. Wall, Bureau of Agricultural Economics. *Discusson leader:* F. F. Hill, Cornell University.

## TUESDAY, DECEMBER 29

9:30 A.M. Joint Meeting with National Association of Marketing Officials.

SUBJECT: *Marketing Research.*[3]

CHAIRMAN: L. A. Bevan, Mass. Bureau of Markets, and President of National Association of Marketing Officials.

*Papers:* 1. "A National Marketing Research Program for Agriculture." Nils A. Olsen, Chief, Bureau of Agricultural Economics.

2. "Value of Marketing Research to the Consumer." F. V. Waugh, New England Research Council.

3. "Types of Research Required in Developing Marketing Programs." Theodore Macklin, California Bureau of Markets. *Discussion leaders:* E. G. Plowman, University of Denver; John H. Cover, Institute of American Meat Packers, University of Chicago.

12:30 P.M. Annual Farm Economic Luncheon.

SUBJECT: *The Health of the Society and Work Ahead.*

2:30 P.M. Round Table I.

SUBJECT: *Teaching Agricultural Marketing.*[3]

CHAIRMAN: H. Bruce Price, College of Agriculture, University of Kentucky.

*Papers:* 1. "The Place of Marketing in an Agricultural Economics Curriculum." O. B. Jesness, University of Minnesota.

2. "Content and Organization of a Course in Principles of Marketing." H. E. Erdman, University of California.

3. "To What Extent Should Price Economics Be Included in Marketing Courses." F. L. Thomsen, Missouri College of Agriculture. *Discussion by:* Leland Spencer, Paul L. Miller, Jos. G. Knapp, F. B. Bomberger, and Nils A. Olsen.

2:30 P.M. Round Table II.

SUBJECT: *Readjustments in Labor and Power on the Farm.*

CHAIRMAN: F. P. Weaver, Pennsylvania State College.

*Papers:* 1. "Trends in Machinery Costs and Wages Paid to Farm Labor." C. M. Purves, Bureau of Agricultural Economics.

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[3] The papers presented in the two programs on marketing will appear in the *Proceedings of the National Association of Marketing Officials.*

2. "Experiments in the Use of Large Scale Machinery Under Montana Conditions." E. A. Starch, University of Montana.
3. "Research in Farm Equipment Costs." W. A. Minor, University of Georgia.
4. "Layout as Related to Efficiency in the Use of Labor." J. E. McCord, Pennsylvania State College.
5. "Study of Labor-Saving Methods and Technique on Vegetable Farms in Massachusetts. R. H. Barrett, Massachusetts Agricultural College.

6:30 P.M. Joint Dinner with National Association of Marketing Officials and Farm Hands Club of Washington, D.C.

SUBJECT: *Origin and Development of Farm Economics, and the Contributions of the Late W. J. Spillman.*

CHAIRMAN: T. N. Carver, Harvard University.

*Addresses:* 1. "The Origin and Development of Farm Economics in the United States." G. F. Warren, Cornell University.
2. "The Origin and Development of the Office of Farm Management in the Department of Agriculture." E. H. Thomson, Federal Land Bank, Springfield, Mass.
3. "The Origin of Farm Economics Extension." C. B. Smith, Extension Service, Department of Agriculture.

WEDNESDAY, DECEMBER 30

9:15 A.M. Business Meeting.

10:00 A.M. Joint Meeting with American Statistical Association.

SUBJECT: *Shifts and Trends in the Demand for Agricultural Products.*

CHAIRMAN: H. R. Tolley, University of California.

*Papers:* 1. "The Shifting Demand for Selected Agricultural Commodities, 1875-1929 (illustrated)." Henry Schultz, University of Chicago.
2. "The Effect of a Business Depression upon the Demand for Livestock Products, and the Outlook for these Products." Warren C. Waite, University of Minnesota.
3. "Indications of Changes in the Demand for Agricultural Products: Shifts and trends indicated by some studies made in the Bureau of Agricultural Economics, U. S. Department of Agriculture." Elmer J. Working, Bureau of Agricultural Economics. *General discussion led by:* W. Leontief, National Bureau of Economic Research; F. A. Pearson, Cornell University.

12:30 P.M. Joint Luncheon with American Statistical Association.

SUBJECT: *The National Economic Outlook.*

*Speakers:* Leonard P. Ayres, Cleveland Trust Company, David Friday, L. H. Bean, U. S. Department of Agriculture.

2:45 P.M.

SUBJECT: *Readjustments in Farm Organization.*

CHAIRMAN: T. P. Cooper, Kentucky College of Agriculture.

*Paper:* "Readjustments in Organization for Production in View of the Outlook for Agriculture." C. L. Holmes, Bureau of Agricultural Economics. *Discussions:* G. W. Forster, North Carolina State College of Agriculture; H. C. M. Case, Illinois College of Agriculture; Sherman E. Johnson, South Dakota State College of Agriculture; H. C. Woodworth, College of Agriculture, University of New Hampshire.

## *Report on Conference of Joint Committee on European Corn Borer*

Held at Toledo, Ohio, September 29-30, 1931

The first day, September 29, was given over to a trip to the new corn borer experimental farm ten miles southwest of Toledo and to a tour of nearly 200 miles, including Fostoria as the southern limit and Oak Harbor as the eastern limit. The plots on the farm include the following:

Tests of borer tolerance in corn plants in relation to soil productivity and soil type under different borer populations. Results to date indicate a greater borer infestation and survival in fertilized plots but the fertilized corn seems better able to tolerate borer infestation, resulting in increased yields to more than compensate for the cost of the fertilizer.

Tests to determine reductions in yield and breakage of stalks caused by different varieties and types of corn under six different levels of borer population. Three types of field corn are used: Smoky Dent, representing a small-type variety; Clarage, a medium type; and Johnson County White, a large type; also two types of sweet corn, Golden Bantam and Country Gentleman. The results of these experiments will enable us to determine the damage that may be expected by different levels of infestation on different soils and with different types of corn.

Several plots are used by the Entomology and Agronomy Departments of the Illinois Agricultural Experiment Station, for testing rotations and corn varieties, including important commercial varieties as well as selfed and hybrid strains developed by Illinois plant breeders. The rotation employed is corn, soy beans and wheat and sweet clover. In some of the plots manual infestations are made to determine tolerance or resistance under varying degrees of infestation. Several of the varieties and strains have given encouraging results to date, being high yielders and apparently tolerant to infestation.

Crop residue treatment tests are located in a series of plots to determine the cumulative effects of different treatments of cornstalk residues upon yields of following crops and upon draft and coverage ability of plows.

Another plot is used for insecticide tests and certain others are devoted to the testing of experimental machinery.

Demonstrations were given to show the efficiency of certain implements to aid in crop residue disposal. Implements demonstrated included ensilage harvester and corn binders with low-cutting attachments, sled-type stalk shavers, special four-bar side delivery rakes, and plows.

The committee members were unanimous in approving the new experimental farm, including the uniformity and type of soil and the layout of plots.

The party was impressed by the increase in intensity of infestation, especially in the vicinity of Fostoria, Ohio, where, a year hence, injury may be quite general if seasonal conditions are favorable for the corn borer. This situation gives further evidence of probable injury when the borer becomes established in the corn belt.

The variety, insecticide, and fertilizer plots at Oak Harbor, a cooperative project between the Federal Department of Agriculture and the Ohio Agricultural Experiment Station were also visited.

An organization meeting was held at the Fort Meigs Hotel at 8:30 P.M. Professor George A. Dean was elected Chairman and J. J. Davis, Secretary.

September 30. Meeting called to order at 8:45 A.M.

The following reported on progress of projects: Worthley, Caffrey, Caesar, Marston, Gray, McComas, Headlee, Davis, Ficht, Flint, Houser and Huber.

Following a temporary adjournment to enable sub-committees to work up reports, the committee as a whole approved a report which is attached hereto.

Before adjournment it was moved and carried that the 1932 committee meeting be held at approximately the same time as this year and that the exact dates be left to the discretion of Messrs. Caffrey and Dean. It was suggested that the latter part of the week would be preferable to earlier in the week.

J. J. DAVIS, *Secretary*

## *Report of the Joint Committee on European Corn Borer*

Toledo, Ohio, September 30, 1931

The natural spread and increase of the European corn borer, which was retarded by the abnormal season of 1930, was resumed in 1931. The intensity of infestation in 1931 was about two and a half times that of 1930 and more than twice that of 1929. Although the past season cannot be regarded as having been exceptionally favorable for the corn borer, some of the serious infestations recognized as possible in the 1930 report of this committee actually occurred. As a result, there is a much larger number of larvae at present than in the fall of 1930, with a consequently greater danger for 1932. The increase in borer population was particularly heavy (1) in northwestern Ohio, south of the former center of infestation along Lake Erie, and (2) in the important sweet corn area along the southern and eastern shores of Lake Ontario in New York.

The present infested area includes all of the corn-growing areas in Canada, excepting the western provinces; also 220,00 square miles in the United States, including the southern two-thirds of New England, northern part of New Jersey, all of New York, three-fourths of Pennsylvania, the panhandle of West Virginia, practically all of Ohio, the northeastern half of Indiana and nearly all of the agricultural portion of Michigan. In the area east of the Connecticut River in Connecticut, Massachusetts and states north, in that territory in Connecticut west of the river adjacent to Long Island Sound, and in restricted localities in New Jersey, the two-brooded form occurs, while in all other infested sections of the United States and all infested areas in Canada, excepting Nova Scotia and New Brunswick, only the one-brooded form occurs. Small isolated infestations occurred in eastern Wisconsin, Kentucky, and extreme southern Indiana.

The increase in spread and infestation in 1931 further demonstrates that seasons of increase and decrease in borer abundance will occur as with other crop pests. Temporary checks to the corn borer in individual seasons, such as that in 1930, must not be interpreted as minimizing the seriousness of the insect as a destructive agency.

The large increase in borer population in 1931 emphasizes that the European corn borer is one of the most potentially destructive crop pests ever introduced into America. This fact calls for the continued cooperation of the farmer, the scientist, the educator, and all State and Federal administrative officials.

The joint committee of entomologists, agronomists, agricultural engineers, agricultural economists, and animal husbandmen, commends the efforts of all farmers practicing recommended control measures and of those engaged in the research, regulatory, and educational activities.

The committee recognizes the necessity for the continuation of the research, educational, and quarantine programs of the State and Federal governments and earnestly

recommends the appropriation of the funds needed to maintain and, if necessary, to expand them as suggested later in this report. The committee recommends this support only after due consideration of the absolute necessity of holding current governmental expenditures to a minimum.

After careful investigation of the regulatory, research, and educational activities, the committee suggests and recommends:

1. Since the enforcement of quarantine regulations in the United States has undoubtedly been instrumental in preventing long distance spread of the insect in the past, that this activity of the Federal governments of the United States and Canada, as well as the State and Provincial governments, be supported and encouraged by all agencies and individuals interested in the welfare of American Agriculture. These activities should include: (a) thorough scouting, (b) careful clean-up of isolated infested areas, and (c) maintenance of quarantines.

2. That the extension agencies of the Federal governments of the United States and Canada and of the State and Provincial agricultural colleges, strengthen and coordinate their programs of education relating to the corn borer, extending these to conform with the spread and abundance of the insect and with the increased knowledge gained through research.

3. The entomological investigations now in progress should be continued. The following studies on which material progress already has been made, should be especially stressed: (a) the expedition of parasite introductions and the development of artificial media for mass production of parasites, (b) the development of effective insecticides and their efficient application, (c) evaluation of the effect of environmental factors on the insect's activity.

4. While the development of immune varieties seems unlikely at this time, experiments point clearly to the probable development of high yielding resistant and tolerant varieties of corn which should be an important factor in control. To promote the development of such varieties, the corn breeding programs of the State and Federal governments should be continued and strengthened.

5. Inasmuch as control of the borer, as yet, depends largely upon mechanical means in the hands of growers, it is recommended that research and development work along mechanical lines by the agricultural engineers be continued and be strongly supported by the Federal Government and by the States, with a sincere effort being made to coordinate such activities through the Bureau of Agricultural Engineering. In such work it is recommended that attention should be directed first toward machine types now common on farms, in view of the fact that agriculture cannot easily avail itself of new types of equipment primarily for control until it has used to the best possible advantage the equipment now on farms.

Attention is drawn to the fact that considerable development work has been accomplished and now awaits adoption by the various extension forces and by the manufacturers of farm equipment. It is recommended that the extension forces bear in mind that the better use of equipment now on farms is to be fostered.

The manufacturers are to be commended for their interest and loyal support in corn-borer work to date, and, in spite of the readjustment period, it is hoped that they will continue rapidly to convert development accomplishments into the commercial channels, so that the growers—who must carry the burden of control—will not be handicapped by the latest, practical, mechanical devices not being available to the public.

6. Since the corn borer control practices developed and proposed may change the organization and income of the farm it is important that the relation of these prac-

tices to the entire farm business be determined and recommendations made for specific conditions. Proposals including changes in cropping systems, complete utilization of corn, substitute crops, changes in corn acreages and labor and equipment costs should be worked out in line with the objective of maximum returns from farming.

7. Continued and further studies should be made on the influence of different borer populations upon; (a) feeding value of corn and the corn plant in different forms, (b) upon the yield of feed nutrients per acre, (c) comparative feeding value due to different methods of harvesting and preparing crop, (d) use and feeding value of substitute crops and (e) the influence of the corn borer and resultant control measures upon the cost of production and the quality of livestock products.

Respectfully submitted,

COMMITTEES:

*American Association of Economic Entomologists*

G. A. DEAN, L. CAESAR, J. J. DAVIS, D. J. CAFFREY, T. J. HEADLEE.

*American Society of Agronomy*

L. E. CALL, W. L. BURLISON, F. D. RICHEY, J. F. COX, R. M. SALTER.

*American Society of Agricultural Engineers*

C. O. REED, W. C. HARRINGTON, R. D. BARTON, A. L. YOUNG, R. B. GRAY.

*American Farm Economic Association*

E. D. HILL, C. R. ARNOLD, C. L. HOLMES, J. COKE, LYNN ROBERTSON, R. R. HUDELSON.

*American Society of Animal Production*

E. W. SHEETS, F. G. KING, T. B. MORRISON, PAUL GERLAUGH, G. A. BROWN.

# THE AMERICAN FARM ECONOMIC ASSOCIATION
## *CONSTITUTION*

### ARTICLE I

*Name.*—The name of the Association shall be The American Farm Economic Association.

### ARTICLE II

*Object.*—The object of this Association shall be to promote the investigation and teaching of farm management and other economic questions pertaining to agriculture.

### ARTICLE III

*Membership.*—The membership shall consist of persons interested in Farm Management and Farm Economics.

Associations of ten or more members in a state or region may be recognized by the Executive Committee as local chapters of the American Farm Economic Association. Such locals may admit as members only persons who are members of the American Farm Economic Association but they may admit associate members on such conditions as they desire.

### ARTICLE IV

*Organization.*—The officers shall be a President, two Vice-Presidents, and a Secretary-Treasurer, who shall be elected for one year, and who shall serve until their successors shall qualify.

The Executive Committee shall consist of the active officers, and the latest four past presidents, and shall have the power of appointing committees, selecting time and places of meeting, and of bringing to the attention of the members any matter which in their judgment should be considered by the Association.

There shall be three standing committees appointed annually by the Executive Committee. One of these committees shall consider the lines of investigation best adapted to the needs of the work of farm economics at the present time and shall suggest to various investigators plans of correlation and cooperation in the work. It shall be the duty of this committee to collect, as far as possible from investigators, the lines of work to be carried out each year. The second committee shall investigate the methods of lecture and laboratory work in farm economics and make suggestions to members of the Association and to Colleges intending to organize courses in farm economics. It shall be the duty of the third committee to report on extension work in farm economics.

### ARTICLE V

*Section 1.* Dues and Subscriptions.—The rate for members of the Association shall be five dollars per year, payable in advance. This amount is divided as follows: Annual dues fifty cents, and annual subscription to the JOURNAL OF FARM ECONOMICS, four dollars and fifty cents.

*Section 2.* Life membership in the Association may be secured by the payment of seventy-five dollars ($75). Funds thus obtained shall be invested and only the income spent.

### ARTICLE VI

*Meetings.*—There shall be held an annual meeting of the Association, the arrangements and program to be made by the Executive Committee. Notice of such meeting shall be mailed to each member at least four weeks in advance.

### ARTICLE VII

*Amendments.*—This constitution may be amended by a two-thirds vote of the members present at any meeting of the Association.